Sensors Quick Look

A quick reference guide to Proximity, Photoelectric, and Ultrasonic Sensors, Limit Switches, Pressure Sensors, Cabling Components, Encoders, RFID, and Machine Safety

Catalog

Simply easy!

Telemecanique
Sensors

Telemecanique™ Sensors

Simply easy!

Telemecanique brand has designed and manufactured factory automation and safety sensors for nine decades. Throughout its history, it has been known for its wide range of robust and reliable products.

Our goal is to simplify the life of our customers, allowing them to concentrate on their core business and the performance of their machines. Telemecanique Sensors products are designed and manufactured based on the following values:

- Simplicity and modularity
- Ease of selection
- Ease of installation and maintenance
- Availability of expert services to share our know-how

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> Dedicated sales team: our trained and experienced sales professionals are available to help you with any sensing application.

> Telemecanique Sensors team: available for pre- and post-sales support. We become an extension of your team and share our expertise with you.

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Detection

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Telemecanique Sensors
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New

• *Safety and limit switches*

Preventa XCSLF and **XCSLE**, the new safety interlock switches for protecting operators of potentially dangerous machines with inertia

Preventa XUSL, the new safety Light Curtains, for efficient protection of machine operators—for finger, hand, and body

Preventa XY2CJ emergency-stop cable pull switches—a solution that's easy to reach and trigger from anywhere in the work zone

Osisense™ XCKVR, the new economical cross limit switches for hoisting applications

• *Pressure sensors for control applications*

OsiSense XMLP, a new range of compact pressure transmitters with a gasket-free design for industrial operations

OsiSense XMLR, the intuitive pressure switch that combines high performance and maximum ease of use, to easily control machine pressure

OsiSense ZMLP, the simple switch with display, delivering a clear view of accurate pressure information. Mounts directly on a separate pressure transmitter, or remotely if the transmitter is in a hard-to-access location.

• *Inductive proximity sensors*

OsiSense XS7, XS8, C2, and C4, the new range of cubic and rectangular inductive sensors for material handling applications

OsiSense XS9 stainless steel inductive proximity sensors—tough enough for the harshest industrial applications and environments

• Vision sensors

OsiSense XUW vision sensor—simple to configure and install, assists in the quality control of your manufactured parts

• Photoelectric sensors

OsiSense XUY roller sensors, the new photoelectric sensors for simple integration into your roller conveyors system

OsiSense XUVE optical fork sensor for labeling applications, offering fast integration, a small heel, and very precise, one-step teaching for simple setup

OsiSense XUM8, the miniature photoelectric sensors with efficient detection in diffuse mode with background suppression

OsiSense XUK laser, a new range of long sensing distance photoelectric laser sensors that provide an accurate beam for very precise detection, even on small objects, and are also highly resistant to harsh environments (IP69K, Ecolab)

• Ethernet RFID smart antenna

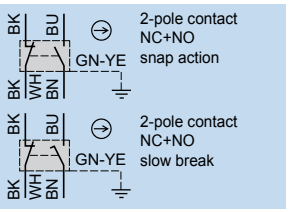
OsiSense XG smart antenna with integrated Modbus™ TCP and Ethernet IP communication—allows daisy chaining of up to 32 smart antennas in a single loop

• Cabling components

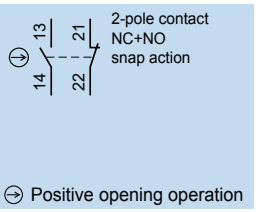
OsiSense XZ PVC, a new economical offer of prewired connectors and jumpers with PVC cable for environments with low mechanical constraints, completing the offer of PUR cable for severe environments and reinforced PVC for food and beverage environments

Limit switches
Compact and miniature, complete switches
(variable composition, see pages 8–9)

XCMD



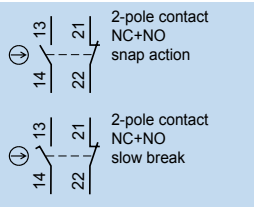
XCKT



Miniature XCMD metal, precabled; mounting by the body or by the head

Type of operator		Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	M12 head metal end plunger bushing mount
Mechanical durability (millions of operating cycles) *(5)*		10	10	10	10	10	10
Actuation speed (m/s)		0.5	0.5	1.5	1.5	1.5	0.5
Switches conforming to standard IEC 947-5-1 section 3		⊖	⊖	⊖	⊖	⊖	⊖
Product certification		CE, UL, CSA, CCC					
Degree of protection conforming to IEC 60529		IP66 and IP67					
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC-15; B300 (Ue = 240 V, Ie = 1.5 A) / DC-13; R300 (Ue = 250 V, Ie = 0.1 A)					
Mounting centers, mm (in.)		20 (0.79)					M12 x 1
Body dimensions, W x D x H, mm (in.)		30 x 16 x 50 (1.18 x 0.63 x 1.97)					
Connection	Cable	Precabled, adjustable direction, 1 m (other lengths available on request)					
Complete switch	2-pole NC+NO snap action	**XCMD2110L1**	**XCMD2102L1**	**XCMD2115L1**	**XCMD2116L1**	**XCMD2145L1**	**XCMD21F0L1**
	2-pole NC+NO break before make, slow break	**XCMD2510L1**	**XCMD2502L1**	**XCMD2515L1**	**XCMD2516L1**	**XCMD2545L1**	**XCMD25F0L1**
	Connector	M12					
Complete switch	NC+NO snap action (M12-5 pins)	**XCMD2110C12**	**XCMD2102C12**	**XCMD2115C12**	**XCMD2116C12**	**XCMD2145C12**	**XCMD21F0C12**
	1C/O snap action (M12-4 pins) *(1)*	**XCMD2110M12**	**XCMD2102M12**	**XCMD2115M12**	**XCMD2116M12**	**XCMD2145M12**	**XCMD21F0M12**

XCKP/XCKD

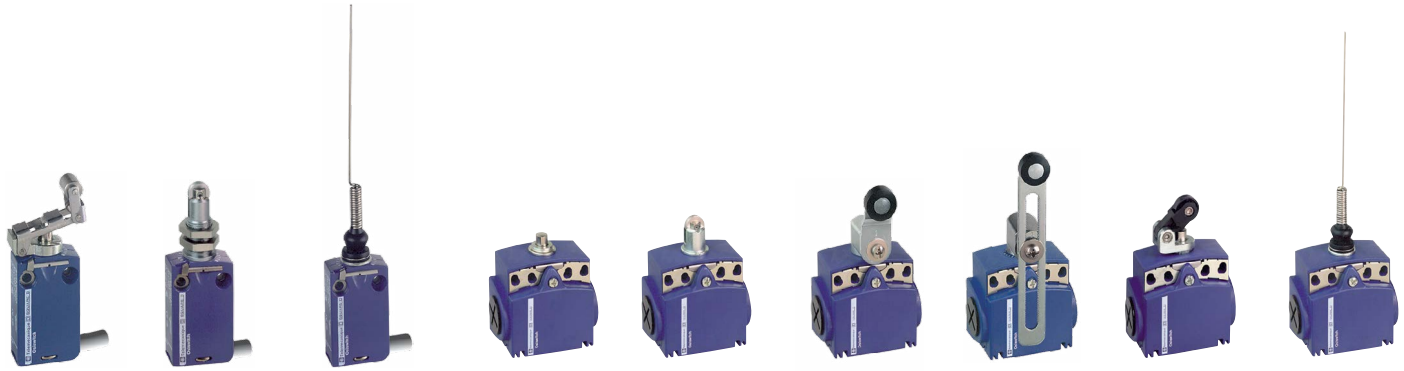


⊖ Positive opening operation

Compact XCKD metal and XCKP plastic conforming to standard EN 50047

Type of operator		Metal end plunger	Steel roller plunger	Thermoplastic roller-lever plunger, horizontal actuation in 1 direction	M18 head metal end plunger bushing mount	M18 head steel roller plunger bushing mount
Mechanical durability (millions of operating cycles) *(5)*		15	10	15	10	10
Actuation speed (m/s)		0.5	0.5	1	0.5	0.5
Switches conforming to standard IEC 947-5-1 section 3		⊖	⊖	⊖	⊖	⊖
Product certification		CE, CSA, CCC, GOST				
Degree of protection conforming to IEC 60529		IP66 and IP67				
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry		1 tapped entry for 1/2"-14 NPT conduit *(3)* or M12 connector				
Mounting centers, mm (in.)		20 (0.79)	20 (0.79)	20 (0.79)	M18 x 1	M18 x 1
Body dimensions, W x D x H, mm (in.)		31 x 30 x 65 (1.22 x 1.18 x 2.56)				
Metal switches						
Complete switch	2-pole NC+NO snap action	**XCKD2110N12**	**XCKD2102N12**	**XCKD2121N12**	**XCKD21H0N12**	**XCKD21H2N12**
	2-pole NC+NO break before make, slow break	**XCKD2510N12**	**XCKD2502N12**	**XCKD2521N12**	**XCKD25H0N12**	**XCKD25H2N12**
	2-pole NC+NO snap action (M12-5 pins)	**XCKD2110M12**	**XCKD2102M12**	**XCKD2121M12**	**XCKD21H0M12**	**XCKD21H2M12**
Plastic, double insulated switches						
Complete switch	2-pole NC+NO snap action	**XCKP2110N12**	**XCKP2102N12**	**XCKP2121N12**	**XCKP21H0N12**	**XCKP21H2N12**
	2-pole NC+NO break before make, slow break	**XCKP2510N12**	**XCKP2502N12**	**XCKP2521N12**	**XCKP25H0N12**	**XCKP25H2N12**
	2-pole NC+NO snap action (M12-4 pins)	**XCKP2110M12**	**XCKP2102M12**	**XCKP2121M12**	**XCKP21H0M12**	**XCKP21H2M12**

(1) Although their design is identical to the precabled switches, the switches incorporating an M12 4-pin connector cannot be marked with the ⊖ symbol because they are single-pole C/O.
(2) For ISO M16 x 1.5 cable entries, replace **N12** with **P16**. Example: XCKT2110**N12** becomes XCKT2110**P16**.
(3) For Pg 11 cable entries, replace **N12** with **G11**. Example: XCKD2110**N12** becomes XCKD2110**G11**. For other cable entries, see "Customized assembly" on page 8.
(4) For Pg 13.5 cable entries, replace **N12** with **G13**. Example: XCDR2110**N12** becomes XCDR2110**G13**. For other cable entries, see "Customized assembly" on page 9.
(5) Depending on the application.



Compact XCKT plastic, 2 cable entries

Retractable steel roller-lever plunger	M12 head steel roller plunger	Cat's whisker	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Thermoplastic roller-lever plunger, horizontal actuation	Cat's whisker	Cat's whisker
10	10	5	15	10	10	15	5	5
0.5	0.1	1	0.5	0.5	1.5	1	1	1
⊖	⊖	–	⊖	⊖	⊖	⊖	–	–
			CE, CSA, CCC, GOST					
			IP66 and IP67					
			AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
20 (0.79)	M12 x 1	20 (0.79)	20 (0.79) or 40 (1.58)					
			58 x 30 x 51 (2.28 x 1.18 x 2.01)					
			3 entries tapped ISO Pg 11, including one conduit adapter DE9RA1012, Pg 11 to 1/2"-14 NPT *(2)*					
XCMD2124L1	**XCMD21F2L1**	**XCMD2106L1**	**XCKT2110N12**	**XCKT2102N12**	**XCKT2118N12**	**XCKT2145N12**	**XCKT2121N12**	**XCKT2106N12**
XCMD2524L1	**XCMD25F2L1**	**XCMD2506L1**	–	–	–	–	–	–
XCMD2124C12	**XCMD21F2C12**	**XCMD2106C12**	–	–	–	–	–	–
XCMD2124M12	**XCMD21F2M12**	**XCMD2106M12**	–	–	–	–	–	–

Application specific—XCPR and XCDR with manual reset

Thermoplastic roller lever	Variable length thermoplastic roller lever	Thermoplastic roller lever Ø50 mm	Cat's whisker	Metal end plunger	Steel roller plunger	Thermoplastic roller-lever plunger, horizontal actuation in 1 direction	Thermoplastic roller-lever plunger, vertical actuation in 1 direction	Thermoplastic roller lever
10	10	10	5	1	1	1	1	1
1.5	1.5	1.5	1	0.5	0.5	1	1	1.5
⊖	⊖	⊖	–	⊖	⊖	⊖	⊖	⊖
				CE, CSA, CCC, GOST				
				IP66 and IP67				
				AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
				1 tapped entry for 1/2"-14 NPT conduit *(4)*				
20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)	20 (0.79)
				31 x 30 x 95 (1.22 x 1.18 x 3.74)				
XCKD2118N12	**XCKD2145N12**	**XCKD2139N12**	**XCKD2106N12**	**XCDR2110N12**	**XCDR2102N12**	**XCDR2121N12**	**XCDR2127N12**	**XCDR2118N12**
XCKD2518N12	**XCKD2545N12**	**XCKD2539N12**	**XCKD2506N12**	**XCDR2510N12**	**XCDR2502N12**	**XCDR2521N12**	**XCDR2527N12**	**XCDR2518N12**
XCKD2118M12	**XCKD2145M12**	**XCKD2139M12**	**XCKD2106M12**	–	–	–	–	–
XCKP2118N12	**XCKP2145N12**	**XCKP2139N12**	**XCKP2106N12**	**XCPR2110N12**	**XCPR2102N12**	**XCPR2121N12**	**XCPR2127N12**	**XCPR2118N12**
XCKP2518N12	**XCKP2545N12**	**XCKP2539N12**	**XCKP2506N12**	**XCPR2510N12**	**XCPR2502N12**	**XCPR2521N12**	**XCPR2527N12**	**XCPR2518N12**
XCKP2118M12	**XCKP2145M12**	**XCKP2139M12**	**XCKP2106M12**	–	–	–	–	–

For table footnotes, see page 6.

Limit switches
Customized assembly of miniature and compact switches

Heads—common to miniature and compact bodies

Metal plunger and multi-directional heads

Description	Metal end plunger	Metal end plunger with protective elastomer boot	Steel roller plunger	Retractable steel roller-lever plunger	Thermoplastic roller-lever plunger, horizontal actuation
Catalog number	⊖ **ZCE10**	⊖ **ZCE11**	⊖ **ZCE02**	⊖ **ZCE24** (2)	⊖ **ZCE21**

Metal rotary head and levers

Description	Rotary head without lever, spring return, for actuation from left and right	Thermoplastic roller lever, track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)	Steel roller lever, track: 24/31 mm (ZCMD) 29/36 mm (ZCD/P/T)	Thermoplastic roller lever, track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)	Steel roller lever, track: 16/39 mm (ZCMD) 21/44 mm (ZCD/P/T)
Catalog number	⊖ **ZCE01**	⊖ **ZCY15** *(2)*	⊖ **ZCY16** *(2)*	⊖ **ZCY25** *(2)*	⊖ **ZCY25** *(2)*

Bodies

Miniature

Type of contact	2-pole NO+NC Snap action	3-pole 2 NC+1 NO Snap action	2-pole NC+NO Slow break	3-pole 2 NC+1 NO Slow break	2-pole NC+NO Snap action Connector 5 pin	1-pole 1 C/O Snap action Connector 4 pin	4-pole 2 NC+2 NO Snap action
Catalog number of metal body	**ZCMD21**	**ZCMD39**	**ZCMD25**	**ZCMD37**	**ZCMD21C12**	**ZCMD21M12**	**ZCMD41**
Cable 1 m	**ZCMD21L1**	**ZCMD39L1**	**ZCMD25L1**	**ZCMD37L1**	**ZCMD21C12L1**	**ZCMD21M12L1**	**ZCMD41L1**
2 m	**ZCMD21L2**	**ZCMD39L2**	**ZCMD25L2**	**ZCMD37L2**	**ZCMD21C12L2**	**ZCMD21M12L2**	**ZCMD41L2**
5 m	**ZCMD21L5**	**ZCMD39L5**	**ZCMD25L5**	**ZCMD37L5**	**ZCMD21C12L5**	**ZCMD21M12L5**	**ZCMD41L5**

Connection of miniature bodies

Specific precabled connection components	for ZCMD21	for ZCMD39	for ZCMD25	for ZCMD37
1 m	**ZCMC21L1**	**ZCMC39L1**	**ZCMC25L1**	**ZCMC37L1**
2 m	**ZCMC21L2**	**ZCMC39L2**	**ZCMC25L2**	**ZCMC37L2**
5 m	**ZCMC21L5**	**ZCMC39L5**	**ZCMC25L5**	**ZCMC37L5**

Option: PUR prewired M12 connector, 2 m. For other cable options, see page 55.

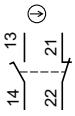
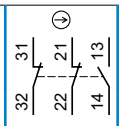
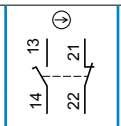
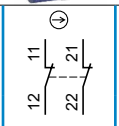
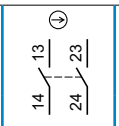
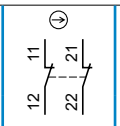
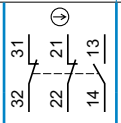
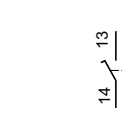
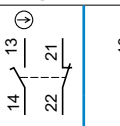
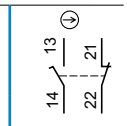
5-pin	4-pin
XZCP1164L2	**XZCP1141L2**

(1) Recommended for use with bodies **ZCD●●● / ZCP●●● / ZCT●●●**.
(2) Recommended for use with bodies **ZCMD●●●**.
⊖ Positive opening operation.

Thermoplastic roller-lever plunger, vertical actuation	M12 head metal end plunger bushing mount	M18 head metal end plunger bushing mount	M12 head steel roller plunger bushing mount	M18 head steel roller plunger bushing mount	Spring rod	Spring rod with plastic end	Cat's whisker
→ **ZCE27**	→ **ZCEF0** *(2)*	→ **ZCEH0** *(1)*	→ **ZCEF2** *(2)*	→ **ZCEH2** *(1)*	**ZCE08**	**ZCE07**	**ZCE06**

Thermoplastic roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Steel roller lever, track: 20/36 mm (ZCMD) 24/40 mm (ZCD/P/T)	Ceramic roller lever	Variable length thermoplastic roller lever	Round, glass fiber rod lever Ø3 mm 125 mm	Metal spring-rod lever	Thermoplastic roller lever Ø50 mm	Adjustable thermo-plastic roller lever Ø50 mm
→ **ZCY18** *(1)*	→ **ZCY19** *(1)*	→ **ZCY22**	→ **ZCY45**	**ZCY55**	**ZCY91**	→ **ZCY39**	→ **ZCY49**

Compact

Type of contact	 2-pole NC+NO Snap action	 3-pole 2 NC+1 NO Snap action	 2-pole NC+NO Slow break	 2-pole NC+NC Slow break	 2-pole NO+NO Slow break	 2-pole NC+NC Snap action	 3-pole 2 NC+1 NO Slow break	 2-pole NC+NO – Snap action		 2-pole NC+NO Snap action	 2-pole NC+NO Slow break
								Connector 5-pin	Connector 4-pin		
Metal body	**ZCD21**	**ZCD39**	**ZCD25**	**ZCD27**	**ZCD28**	**ZCD29**	**ZCD37**	**ZCD21M12**	–	–	–
Plastic body	**ZCP21**	**ZCP39**	**ZCP25**	**ZCP27**	**ZCP28**	**ZCP29**	**ZCP37**	–	**ZCP21M12**	**ZCT21P16** *(3)*	**ZCT25P16** *(3)*

Connection of compact bodies

Interchangeable outlet for cable connector						
Description	For ISO M16 cable entry	For ISO M20 cable entry	For Pg 11 cable entry	For Pg 13.5 cable entry	For 1/2" NPT cable entry	For PF 1/2 (G12) cable entry
Metal	**ZCDEP16**	**ZCDEP20**	**ZCDEG11**	**ZCDEG13**	**ZCDEN12**	**ZCDEF12**
Plastic	**ZCPEP16**	**ZCPEP20**	**ZCPEG11**	**ZCPEG13**	**ZCPEN12**	**ZCPEF12**

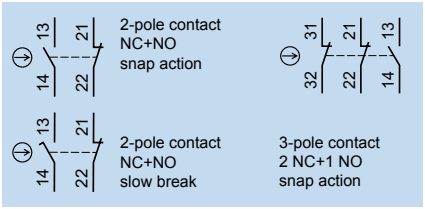
Option: PUR prewired M12 connector, 2 m.
For other cable options, see page 55.

5-pin	4-pin
XZCP1164L2	**XZCP1141L2**

(3) ZCT Pg 11 cable connector versions: replace the suffix **P16** with **G11**. Example: ZCT21**P16** becomes ZCT21**G11**.
ZCT 1/2" NPT versions: replace the suffix **P16** with **N12** (adapter). Example: ZCT21**P16** becomes ZCT21**N12** (2 Pg11 cable entries with 1 1/2"-14 adapter).

Limit switches
Classic—XCKM, XCKL, complete switches

XCKM



Type XCKM metal, 3 cable entries / XCKL metal, 1 cable entry

Type of operator		Metal end plunger	Steel roller plunger	Roller-lever plunger, horizontal actuation in 1 direction	Thermoplastic roller lever	Cat's whisker
Mechanical durability (millions of operating cycles) *(6)*		20	20	20	15	10
Actuation speed (in m/s)		0.5	0.5	1.5	1.5	0.5
Product certification		CE, UL, CSA, CCC, GOST, C-TICK, BV				
Degree of protection conforming to IEC 60529		IP665				
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)				
Cable entry	XCKM *(1)* *(2)*	3 tapped entries 1/2"-14 NPT (2 entries fitted with blanking plugs), conduit adapter				
	XCKL *(1)*	1 bottom cable entry tapped for 1/2"-14 NPT conduit				
Mounting centers, mm (in.)		41 (1.61)				
Body dimensions, W x D x H, mm (in.)	XCKM / XCKL	64 x 30 x 64 (2.52 x 1.18 x 2.52) / 52 x 30 x 72 (2.05 x 1.18 x 2.84)				

Complete switch	**XCKM**					
	2-pole NC+NO snap action	⊖ **XCKM110H7**	⊖ **XCKM102H7**	⊖ **XCKM121H7**	⊖ **XCKM115H7**	**XCKM106H7**
	2-pole NC+NO, break before make, slow break	⊖ **XCKM510H7**	⊖ **XCKM502H7**	⊖ **XCKM521H7**	⊖ **XCKM515H7**	–
Complete switch	**XCKL**					
	2-pole NC+NO snap action	⊖ **XCKL110H7**	⊖ **XCKL102H7**	⊖ **XCKL121H7**	⊖ **XCKL115H7**	**XCKL106H7**

Classic—XCKM, XCKL,
Customized assembly—Body/contact sub-assemblies

Type XCKM metal, 3 cable entries / XCKL metal, 1 cable entry

Type of contact		2-pole NC+NO snap action	2-pole NC+NO slow break	3-pole 2 NC+1 NO snap action	3-pole 2 NC+1 NO slow break
Catalog number of body with contact block	XCKM	⊖ **ZCKM1H7**	⊖ **ZCKM5H7**	⊖ **ZCKMD39H7**	⊖ **ZCKMD37H7**
	XCKL *(3)*	⊖ **ZCKL1H7**	⊖ **ZCKL5H7**	⊖ **ZCKLD39H7**	⊖ **ZCKLD37H7**
Catalog number of contact block only	XCKM	⊖ **XE2SP2151**	⊖ **XE2NP2151**	⊖ **XE3SP2141**	⊖ **XE3NP2141**

(1) For Pg 11 cable entries, remove the **H7** suffix. Example: XCKL110**H7** becomes XCKL110.
(2) For ISO M20 x 1.5, replace the **H7** suffix with **H29**. Example: XCKM110**H7** becomes XCKM110**H29** (XCKM only).
(3) For Pg 11 cable entry, remove the **H7** suffix. Example: ZCKL1**H7** becomes ZCKL1**.**
(6) Depending on the application.
⊖ Positive opening operation.

Operating heads, complete or for customer assembly

Complete switch

=

Body/contact assembly

+

Head

+

Lever

Rotary or multi-directional heads

Metal head with thermoplastic roller lever	Metal head with steel roller lever	With variable length thermoplastic roller lever *(4)*	With Ø6 mm thermoplastic rod 200 mm *(5)*	With thermoplastic roller lever *(5)* for actuation from left **AND** right or left **OR** right	With cat's whisker	With spring rod
Catalog number	⊖ **ZCKD15**	⊖ **ZCKD16**	**ZCKD41**	**ZCKD59**	⊖ **ZCKD31**	**ZCKD06**	**ZCKD08**

Plunger heads

With metal end plunger	With metal end plunger and protective boot	With steel roller plunger	With steel roller plunger and protective boot	With thermoplastic roller-lever plunger, horizontal actuation in 1 direction	With steel roller-lever plunger, horizontal actuation in 1 direction
Catalog number	⊖ **ZCKD10**	⊖ **ZCKD109**	⊖ **ZCKD02**	⊖ **ZCKD029**	⊖ **ZCKD21**	⊖ **ZCKD23**

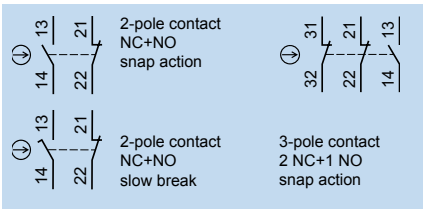
Rotary heads and separate levers

Spring return, selectable, for actuation from left **AND** right or left **OR** right	Spring return, selectable, for actuation from left **AND** right or left **OR** right	Lever with thermoplastic roller *(4)*	Lever with steel roller *(4)*	Variable length lever with thermoplastic roller *(4)*	Variable length lever with steel roller *(4)*	Rod, Ø6 mm thermoplastic 200 mm *(4)*
Catalog number	⊖ **ZCKG00**	⊖ **ZCKD05**	⊖ **ZCKY31**	⊖ **ZCKY33**	**ZCKY41**	**ZCKY43**	**ZCKY59**

(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.
(5) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
⊖ Positive opening operation.

Limit switches
Industrial—XCKJ, complete switches

XCKJ

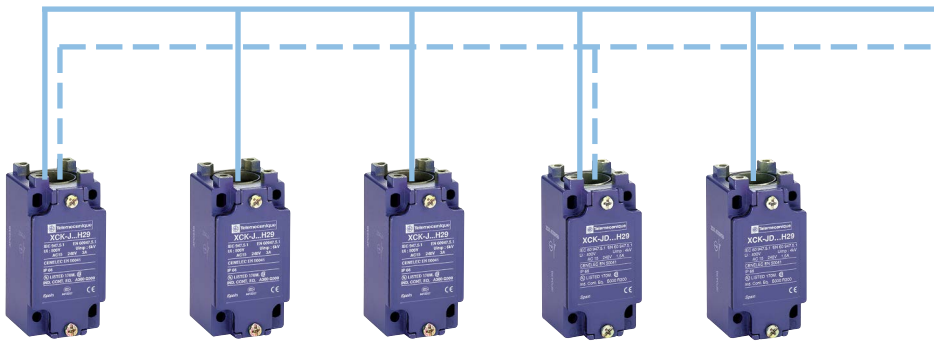


Type XCKJ metal, fixed body, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Steel roller lever	Variable length thermoplastic roller lever	Polyamide Ø6 mm rod lever 200 mm
Mechanical durability (millions of operating cycles) *(2)*	30	25	30	30	30	30
Actuation speed (in m/s)	0.5	1	1.5	1.5	1.5	1.5
Product certification	CE, UL, CSA, CCC, GOST, C-TICK, BV					
Degree of protection conforming to IEC 60529	IP667					
Rated operational specifications (conforming to EN IEC 60947-5-1)	AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
Cable entry *(1)*	1 tapped entry for 1/2"-14 NPT conduit entry					
Mounting centers, mm (in.)	30 x 60 (1.18 x 2.36)					
Body dimensions, W x D x H, mm (in.)	40 x 44 x 77 (1.58 x 1.73 x 3.03)					

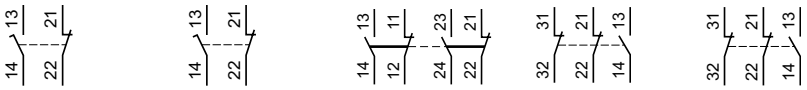
Complete switch	**1/2"-14 NPT**	2-pole NC+NO snap action	⊖ **XCKJ161H7**	⊖ **XCKJ167H7**	⊖ **XCKJ10511H7**	⊖ **XCKJ10513H7**	**XCKJ10541H7**	**XCKJ10559H7**
		2-pole NC+NO break before make, slow break	⊖ **XCKJ561H7**	⊖ **XCKJ567H7**	⊖ **XCKJ50511H7**	⊖ **XCKJ50513H7**	**XCKJ50541H7**	**XCKJ50559H7**
	Pg 13.5	2-pole NC+NO snap action	⊖ **XCKJ161**	⊖ **XCKJ167**	⊖ **XCKJ10511**	⊖ **XCKJ10513**	**XCKJ10541**	**XCKJ10559**
	M12 (5 pin)	2-pole NC+NO snap action	⊖ **XCKJ161D**	⊖ **XCKJ167D**	⊖ **XCKJ10511D**	⊖ **XCKJ10513D**	**XCKJ10541D**	**XCKJ10559D**

Industrial—XCKJ,
Customized assembly—Body/contact sub-assemblies



Type XCKJ metal, 1 cable entry

Type of contact



		2-pole NC+NO snap action	2-pole NC+NO slow break	2 C/O snap action simultaneous	3-pole 2 NC+1 NO snap action	3-pole 2 NC+1 NO slow break
Cable entry *(1)*		1 tapped entry or M12 connector entry				
Body with contact block	**1/2"-14 NPT**	⊖ **ZCKJ1H7**	⊖ **ZCKJ5H7**	**ZCKJ2H7**	⊖ **ZCKJD39H7**	⊖ **ZCKJD37H7**
	Pg 13.5	⊖ **ZCKJ1**	⊖ **ZCKJ5**	**ZCKJ2**	⊖ **ZCKJD39**	⊖ **ZCKJD37**
	M20	⊖ **ZCKJ1H29**	⊖ **ZCKJ5H29**	**ZCKJ2H29**	⊖ **ZCKJD39H29**	⊖ **ZCKJD37H29**
	M12 (5 pin)	⊖ **ZCKJ1D**	⊖ **ZCKJ5D**	–	–	–
Contact block only		⊖ **XE2SP2151**	⊖ **XE2NP2151**	–	⊖ **XE3SP2141**	⊖ **XE3NP2141**

(1) For M20 x 1.5 mm conduit entry, change suffix **H7** to **H29**. Example: XCKJ161**H7** becomes XCKJ161**H29**.
(2) Depending on the application.
⊖ Positive opening operation.

Operating heads, complete or for customer assembly

Complete switch

=

Body/contact assembly

+

Head

+

Lever

Plunger or multi-directional heads

	With reinforced steel roller end plunger	With metal end plunger	With thermoplastic roller-lever plunger, 1 direction of actuation	With steel roller-lever plunger, 1 direction of actuation	With steel roller end plunger	With steel ball bearing end plunger	End steel roller plunger with protective boot
Catalog number	ZCKE67	ZCKE61	ZCKE21	ZCKE23	ZCKE62	ZCKE66	ZCKE629

	Metal side plunger	Side steel roller plunger, horizontal	Side steel roller plunger, vertical	Spring rod	Cat's whisker
Catalog number	ZCKE63	ZCKE64	ZCKE65	ZCKE08	ZCKE06

Separate rotary heads and levers

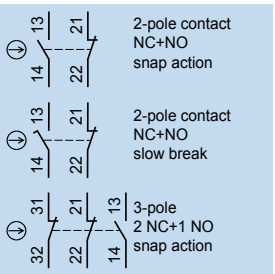
	Spring return for actuation from left **AND** right or left **OR** right	Lever with thermoplastic roller *(2)*	Lever with steel roller *(3)*	Variable length lever with thermoplastic roller *(3)*	Variable length lever with steel roller *(3)*	Rod, Ø6 mm thermoplastic 200 mm *(3)*	Square rod lever, steel, ☐ 3 mm 125 mm *(3)*	Round rod lever, steel, Ø3 mm 125 mm *(3)*	Spring lever with thermoplastic end *(4)*	Spring-metal rod lever *(4)*
Catalog number	ZCKE05	ZCKY11	ZCKY13	ZCKY41	ZCKY43	ZCKY59	ZCKY51	ZCKY53	ZCKY81	ZCKY91

	Maintained (stay put) for actuation from left **AND** right	Forked arm lever with thermoplastic rollers, 1 track *(3)*	Forked arm lever with thermoplastic rollers, 2 track *(2)*
Catalog number	ZCKE09	ZCKY71	ZCKY61

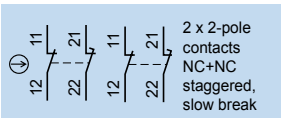
(3) Adjustable throughout 360° in 5° steps, or in 45° steps by reversing the lever mounting.
(4) Adjustable throughout 360° in 5° steps, or in 90° steps by reversing the notched washer.

Limit switches
Classic—XCKS, complete switches

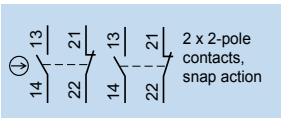
XCKS



XCKMR



XCR



Type XCKS plastic, double insulated, conforming to standard EN 50041

Type of operator	Metal end plunger	Steel roller plunger	Thermoplastic roller lever	Variable length thermoplastic roller lever	Rubber roller lever Ø50 mm	Polyamide Ø6 mm rod lever 200 mm
Mechanical durability (millions of operating cycles) *(3)*	25	15	20	20	20	20
Actuation speed (in m/s)	0.5	0.5	1.5	1.5	1	1
Product certification	CE, UL, CSA, CCC, GOST, C-TICK					
Degree of protection conforming to IEC 60529	IP653					
Rated operational specifications (conforming to EN IEC 60947-5-1)	AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)					
Cable entry *(1)*	1 tapped entry for use with Pg 13.5 cable connector or DE9RA1212 1/2"-14 NPT conduit adapter					
Mounting centers, mm (in.)	30 x 60 (1.18 x 2.36)					
Body dimensions, W x D x H, mm (in.)	40 x 36 x 72.5 (1.58 x 1.42 x 2.85)					

Complete switch	2-pole NC+NO snap action	⊖ **XCKS101**	⊖ **XCKS102**	⊖ **XCKS131**	**XCKS141**	**XCKS139**	**XCKS159**
	2-pole NC+NO break before make, slow break	⊖ **XCKS501**	⊖ **XCKS502**	⊖ **XCKS531**	**XCKS541**	**XCKS539**	**XCKS559**
Body	2-pole NC+NO snap action	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**	⊖ **ZCKS1**
	2-pole NC+NO break before make, slow break	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**	⊖ **ZCKS5**
	3-pole 2 NC+1 NO snap action	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**	⊖ **ZCKSD39**
Associated head (including operator)		⊖ **ZCKD01**	⊖ **ZCKD02**	⊖ **ZCKD31**	**ZCKD41**	**ZCKD39**	**ZCKD59**
Rotary operating head only *(2)*		–	–	**ZCKD05**	**ZCKD05**	**ZCKD05**	**ZCKD05**
Operating lever for rotary head		–	–	⊖ **ZCKY31**	**ZCKY41**	**ZCKY39**	**ZCKY59**
Complete switch	Snap-action 2-pole 2X (1 NC + 1 NO) contact	–	–	–	–	–	–
	Both contacts act in each direction of actuation	–	–	–	–	–	–
	1 contact operates in each direction	–	–	–	–	–	–
Complete switch	2 C/O staggered snap action contacts	–	–	–	–	–	–
	2 x 2 pole NC+NC staggered, slow break contacts	–	–	–	–	–	–

Separate components

Adapter
Pg 13.5 to 1/2"-14 NPT

Catalog number	**DE9RA1212**

(1) For ISO M20 x 1.5 mm cable entry, add suffix **H29**. Example: XCKS161 becomes XCKS161**H29**.
For 1/2"-14 NPT order Pg 13.5 version and use with DE9RA1212: Pg 13.5 to 1/2"-14 NPT adapter.
(2) ZCKD05 uses same levers as XCKL/M series. See page 11.
(3) Depending on the application.
⊖ Positive opening operation.

Severe duty for hoisting and material handling applications
XCKMR, XCKVR, and XCR, complete switches

Types XCKMR, XCKVR, and XCR: Application specific—hoisting, material handling, conveying

Square rod levers Ø 6 mm, crossed	Square rod levers Ø 6 mm, crossed	Square rod lever Ø 6 mm	Large roller rod lever Ø50 mm	Square rod levers Ø 6 mm, crossed or T	Conveyor belt shift monitoring switches Galvanized steel roller and operating lever	 Stainless steel roller and operating lever
2	1	10	10	10	0.3	0.3
1.5	1.5	1.5	1.5	1.5	1.5	1.5
CE, CSA, CCC, GOST						
IP66	IP65	IP54			IP66	
AC-15; A300 (Ue = 240 V, Ie = 3 A) / DC-13; Q300 (Ue = 250 V, Ie = 0.27 A)						
3 x ISO M20 x 1.5 entries	1x ISO M20 x 1.5 entry and 2 holes for ISO M20 cable connector	1 Pg 13.5 tapped entry. For 1/2"-14 NPT conduit entry, order DE9RA1212 adapter (sold separately)				*(8)*
61.5 (2.42)		85 x 75 (3.35 x 2.95)				105 x 70 (4.13 x 2.76)
118 x 59 x 77 (4.65 x 2.32 x 3.03)	116 x 66 x 77 (4.57 x 2.60 x 3.03)	85 x 75 x 95 (3.35 x 2.95 x 3.74)				85 x 87 x 146 (3.35 x 3.43 x 5.75)
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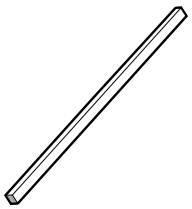
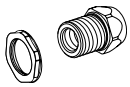
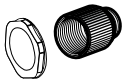
–	–	⇢ **XCRA11H2** *(4)*	⇢ **XCRA15H2**	⇢ **XCRE18H2** *(4)*	–	–
–	–	⇢ **XCRB11H2** *(4)*	–	⇢ **XCRF17H2** *(5)*	–	–
–	–	–	–	–	**XCRT115H2**	**XCRT315H2** *(6)*
XCKMR54D1H29 *(4)*	**XCKVR54D1H29** *(4)(7)*	–	–	–	–	–

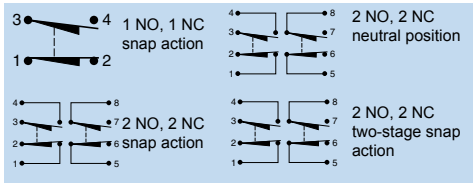
Separate components

	Rod Ø6 mm, 200 mm (7.87 in.)	Rod Ø6 mm, 200 mm (7.87 in.) with red mark	Adapter M20 x 1.5 to 1/2"-14 NPT	Plastic cable connector ISO M20	Adapter Pg 13.5 to 1/2"-14 NPT For use with XCRA/B/E/F, XCRT115, and XCRT215	Adapter For use with XCRT315. Comes with a mounting nut to attach it to the Pg 13.5 switch housing, with an untapped plain entry on the other end.
						
Catalog number	**XCRZ03**	**XCRZ03R**	**DE9RA2012**	**DE9PEM20010**	**DE9RA1212**	**DE9RA12121**

(4) Steel rods, 200 mm.
(5) Steel T rods, L = 200 mm, W = 300 mm.
(6) Polyester enclosure.
(7) Plastic enclosure.
(8) 1 Pg 13.5 unthreaded hole. DE9RA12121 conduit adapter (13.5 blind hole to 1/2"-14 NPT) included.

Square D 9007C

Limit switches
Industrial Heavy Duty—9007C



9007C metal, plug-in style body, conforming to UL508							
Type of operator		Top metal end-plunger	Top steel roller plunger	Rotary level arm type *(1)*	Plastic wobble stick	Metal wire cat's whisker	Side push rod plunger
Mechanical durability (millions of operating cycles) *(2)*		30					
Pretravel, mm (in.)		2 (0.08)		10°	10°	20°	2 (0.08)
Product certification		UL, CSA, CE					
Degree of protection conforming to NEMA and UL, oil-tight		NEMA Types 1, 2, 4, 6, 6P, 12, 13, and IP67 conforming to IEC 60529					
Rated operational specifications		NEMA A600,(Ue=600V, Ie=1.2A, 240 V Ie=A3) NEMA Q600 (Ue=600V, Ie=0.1A, 250 V Ie=0.27 A, two-pole 250 V Ie=0.11 A)					
Cable entry		1/2"-14 NPT standard, optional M20 x 1.5 mm					
Mounting hole centers, mm (in.)		30 x 60 (1.18 x 2.36)					
Body dimensions, without head, W x D x H, mm (in.)		39 x 45 x 75 (1.54 x 1.77 x 2.95)					
Complete switch *(4)*	SPDT-DB Form Z, NO + NC snap action	**9007C54E**	**9007C54D**	**9007C54B2**	**9007C54J**	**9007C54L**	**9007C54G**
	DPDT-DB Form ZZ, 2 NO + 2 NC snap action	**9007C62E**	**9007C62D**	**9007C62B2**	**9007C62J**	**9007C62L**	**9007C62G**
	SPDT-DB ISO M20 x 1.5 mm metric threads	**9007C54EM11**	**9007C54DM11**	**9007C54B2M11**	**9007C54JM11**	**9007C54LM11**	**9007C54GM11**
	DPDT-DB ISO M20 x 1.5 mm metric threads	**9007C62EM11**	**9007C62DM11**	**9007C62B2N11**	**9007C62JM11**	**9007C62LM11**	**9007C62GM11**

Industrial—9007C, Customized Assembly: Body/Contact Sub-Assemblies

9007C metal, 1 conduit/cable entry					
Type of contact					
Terminology SPDT: single pole, double throw DPDT: double pole, double throw DB: double break	SPDT–DB Form Z NO + NC snap action, single pole	DPDT–DB Form ZZ 2 NO + 2 NC snap action, two pole	DPDT–DB Form ZZ 2 NO + 2 NC snap action, two stage	DPDT–DB Form ZZ 2 NO + 2 NC snap action, neutral position	SPDT–DB Form Z NO + NC snap action, compact body
Plug-in switch top (includes contact block)	**9007CO54**	**9007CO62**	**9007CO66**	**9007C068**	**9007CO52**
1/2"-14 NPT standard receptacle *(3)*	**9007CT54**	**9007CT62**	**9007CT62**	**9007CT62**	**9007CT52**

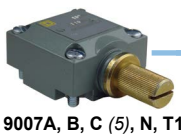
(1) Over 200 lever arms and roller types available. Order separately.
(2) Depending on the application.
(3) For ISO M20 x 1.5 mm threads, add **M11** to the end of the part number. Example: 9007CT54 becomes 9007CT54**M11**.
(4) See the *Sensors* master catalog, 9006CT1007, for more assemblies.

Operating heads, complete or for customer assembly

Plunger or multi-directional heads

9007L	9007K	9007J	9007KC	
				Requires a mushroom head, sold separately
9007E	9007ED	9007D	9007JKC	9007R
9007H	9007G	9007F	9007GD	

Separate rotary heads and levers *(more than 200 rotary style operators are available—some examples are shown below)*



9007A, B, C *(5)*, N, T10, T5

9007MA11	9007HA1	9007FA1	9007EA1	9007FA6	9007LA19 *(5)*
9007AA1	9007LA4 *(5)*	9007KB11	9007CA11	9007MA12	9007BA3
9007HA5	9007KA11	9007HA21	9007RA11	9007HA23	9007DA1

(5) 9007LA● forked levers are recommended for use with 9007C maintained (stay put) operating head.

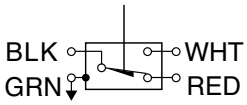
Square D 9007MS/ML Limit switches
Miniature

- Mounting hole centers: 0.98 in. (25 mm)
- Standard cable: 3.0 ft (0.9 m)

General specifications

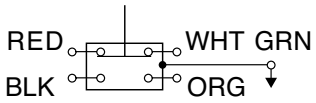
Temperature range	−4 to +220 °F (−20 to 104 °C)
Enclosure rating	NEMA Types 1, 2, 4, 6, 6P, 12, 13, IP67
Vibration resistance	10 G (75–1200 Hz)
Shock resistance	35 G
Cable entry	18 AWG (0.823 mm²) SJTO

Type MS circuit Form C



	Electrical Ratings / SPDT			
	Silver Contacts			Gold Contacts
1 NO or 1 NC	**Volts**	**Make**	**Break**	
	120 Vac	60 A	6 A	100 mA @ 125 Vac
	240 Vac	30 A	3 A	
	10.0 A continuous			30 mA
	DC contact rating: 5 A (resistance), 28 Vdc			28 Vdc

Type ML circuit Form Z



	Electrical Ratings / SPDT-DB		
	Silver Contacts		
1 NO or 1 N.C	**Volts**	**Make**	**Break**
	120 Vac	60 A	6 A
	240 Vac	30 A	3 A
	10.0 A continuous		
	DC contact rating: 5 A (resistance), 28 Vdc		

Contact specifications

Rated thermal current	10 A (standard)
Rated insulation voltage	300 Vac and Vdc (standard)
Gold contact switching ratings	0.1 A, 24 Vdc; 0.24 VA

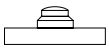
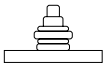
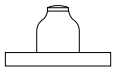
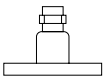
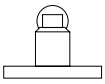
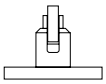
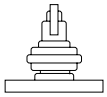
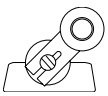
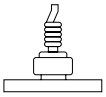
Lever arm selection

	Length		Catalog suffix					
			0.25 in. (6 mm) wide		0.5 in. (13 mm) wide		0.75 in. (19 mm) wide	1.0 in. (25 mm) wide
	in.	**mm**	**Nylon**	**Steel**	**Nylon**	**Steel**	**Nylon**	**Nylon**
Style 7: diameter 0.75 in. (18 mm), nylon or steel roller—outside roller type	0.875	22.23	7A2N	7A2	7B2N	7B2	7F2N	7J2N
	1.375	34.93	7A3N	–	7B3N	–	7F3N	7J3N
	1.50	38.10	7A1N	7A1	7B1N	–	7F1N	7J1N
	1.75	44.45	7A7N	–	7B7N	–	7F7N	7J7N
	2.0	50.80	7A4N	–	7B4N	–	7F4N	7J4N
Style 7X: diameter 0.75 in. (18 mm), nylon or steel roller—inside roller type	0.875	22.23	7XA2N	7XA2	7XB2N	7XB2	7XF2N	7XJ2N
	1.375	34.93	7XA3N	–	7XB3N	–	7XF3N	7XJ3N
	1.50	38.10	7XA1N	7XA1	7XB1N	–	7XF1N	7XJ1N
	1.75	44.45	7XA7N	–	7XB7N	–	7XF7N	7XJ7N
	2.0	50.8	7XA4N	–	7XB4N	–	7XF4N	7XJ4N

Specialty Arms and Options

Description	Length	Diameter	Width	Catalog number
Style 7D adjustable length, metal roller	1.38–3.38 in. (35–85.8 mm)	0.75 in. (19 mm)	0.25 in. (6.35 mm)	7D
Style 7DN adjustable length, nylon roller	1.38–3.38 in. (35–85.8 mm)	0.75 in. (19 mm)	0.25 in. (6.35 mm)	7DN
Style 7E rod arm	10.0 in. (254 mm)	0.125 in. (3.175 mm)	–	7E
Style 7N nylon rod	5.0 in. (127 mm)	0.3 in. (7.6 mm)	–	7N
Style 7S spring nylon rod	6.0 in. (152.4 mm)	0.3 in. (7.6 mm)	–	7S

Rotary and plunger head descriptions

Rotary and plunger head descriptions		Standard	Bushing Mounted	Booted	Adjustable (no boot)
Top plunger					
	Operating Force or Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML01S0100**	**9007ML06S0100**	**9007ML10S0100**	**9007ML09S0100**
	Form C, Silver	**9007MS01S0100**	**9007MS06S0100**	**9007MS10S0100**	**9007MS09S0100**
	Form C, Gold	**9007MS01G0100**	**9007MS06G0100**	**9007MS10G0100**	**9007MS09G0100**
Parallel roller plunger					
	Operating Force or Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML02S0100**	**9007ML07S0100**	**9007ML12S0100**	
	Form C, Silver	**9007MS02S0100**	**9007MS07S0100**	**9007MS12S0100**	
	Form C, Gold	**9007MS02G0100**	**9007MS07G0100**	**9007MS12G0100**	
Cross roller plunger					
	Operating Force or Torque	**80 oz (0.6 N)**			
Contact type	Form Z, Silver	**9007ML03S0100**	**9007ML08S0100**	**9007ML13S0100**	
	Form C, Silver	**9007MS03S0100**	**9007MS08S0100**	**9007MS13S0100**	
	Form C, Gold	**9007MS03G0100**	**9007MS08G0100**	**9007MS13G0100**	
Rotary lever, CW and CCW					
	Operating Force or Torque	**48 oz-in (0.3 N•m)**			
Contact type	Form Z, Silver	**9007ML04S0100**			
	Form C, Silver	**9007MS04S0100**			
	Form C, Gold	**9007MS04G0100**			
Omni-directional, cat's whisker **(NEMA types 1, 2, 12, 13 only)**					
	Operating Force or Torque	**15 oz-in (0.1 N•m)**			
Contact type	Form Z, Silver	**9007ML05S0100**			
	Form C, Silver	**9007MS05S0100**			
	Form C, Gold	**9007MS05G0100**			

OsiSense XM

Sensors for pressure control

Electronic sensors XMLK

Electrical connection by DIN 43650A, Packard® Metri-Pak, or M12 connectors

For pumping applications

Pressure range (psi) *(1)*		0 to 100	0 to 150	0 to 200	0 to 300	0 to 100	0 to 150	0 to 200	0 to 300
Fluids controlled		air, fresh water							
Ambient air temperature		+32 to +176 °F (0 to +80 °C)							
Degree of protection (conforming to IEC 60529)		IP65							
Product certification		CE, UL, CSA							
Voltage limits		8–33 Vdc for 4–20 mA, 16.2–33 Vdc for 0–10 V							
Dimensions Ø x L, mm (in.)		36 x 67.5 (1.42 x 2.66) (not including connector)							
Fluid connection		1/4"-18 NPT (male) or G 1/4" A (male)							
Electrical connection *(2)*		Packard Metri-Pak				M12, 3-pin male			
Type of output		4–20 mA, 2-wire technique, 0–10 V, 3-wire technique							
Analog output	4–20 mA	XMLK100P2P23	XMLK150P2P23	XMLK200P2P23	XMLK300P2D23	XMLK100P2D23	XMLK150P2D23	XMLK200P2D23	XMLK300P2D23
	0–10 V	XMLK100P2P73	XMLK150P2P73	XMLK200P2D73	XMLK300P2P73	XMLK100P2D73	XMLK150P2D73	XMLK200P2D73	XMLK300P2D73

Available in bulk packs for selling in lots. Add **TQ** suffix to the catalog number. Example: XMLK100P2D23 becomes XMLK100P2D23**TQ**.

Electronic sensors XMLR

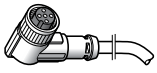
Electronic + Display

Adjustable pressure range *(1)*		bar	−1 to 0	0 to 1	0 to 2.5	0 to 10	0 to 16	0 to 25	0 to 40	0 to 250	0 to 400
		psi	−14.5 to 0	0 to 14.5	0 to 36.3	0 to 145	0 to 232	0 to 362.5	0 to 580.2	0 to 3625	0 to 5800
Fluids controlled			Hydraulic oils, air, fresh water, refrigerant fluids								
Ambient air temperature			−20 to +80°C								
Degree of protection (conforming to IEC 60529)			IP65, IP67 conforming to EN/IEC 60529								
Product certification			cULus conforming to UL 61010-1								
Voltage limits (V)			17 to 33 Vdc								
Dimensions (mm) H x W x D			93 x 41 x 42							88 x 41 x 42	
Fluid connection *(2)*			G1/4A (female)								
Electrical connection			M12 connector 4 pin or 5 pin								
Configurable with 4-digit display											
Analog output		4 to 20 mA	XMLRM01G0T25	XMLR001G0T25	XMLR2D5G0T25	XMLR010G0T25	XMLR016G0T25	XMLR025G0T25	XMLR040G0T25	XMLR250G0T25	XMLR400G0T25
		0 to 10 V	XMLRM01G0T75	XMLR001G0T75	XMLR2D5G0T75	XMLR010G0T75	XMLR016G0T75	XMLR025G0T75	XMLR040G0T75	XMLR250G0T75	XMLR400G0T75
Analog + switching output PNP, NO/NC programmable		4 to 20 mA	XMLRM01G1P25	XMLR001G1P25	XMLR2D5G1P25	XMLR010G1P25	XMLR016G1P25	XMLR025G1P25	XMLR040G1P25	XMLR250G1P25	XMLR400G1P25
		0 to 10 V	XMLRM01G1P75	XMLR001G1P75	XMLR2D5G1P75	XMLR010G1P75	XMLR016G1P75	XMLR025G1P75	XMLR040G1P75	XMLR250G1P75	XMLR400G1P75
2 switching outputs, PNP, NO/NC prog.			XMLRM01G2P05	XMLR001G2P05	XMLR2D5G2P05	XMLR010G2P05	XMLR016G2P05	XMLR025G2P05	XMLR040G2P05	XMLR250G2P05	XMLR400G2P05
Analog + 2 switching outputs		4 to 20 mA	XMLRM01G2P25	—	—	XMLR010G2P25	—	—	XMLR040G2P25	XMLR250G2P25	XMLR400G2P25
Possible differential (bar) (pressure switches)		Min.	0.03		0.08	0.3	0.48	0.8	1.2	7.5	12
		Max.	0.95		2.38	9.5	15	23.8	38	238	380
Maximum permissible accidental pressure (bar)			3	7.5	12	40	62	100	150	750	1200

(1) For other pressure ranges, consult our website at TEsensors.us. *(2)* Also available with ¼"-18 NPT female fluid entry.

Adaptable female plug-in connectors

PUR prewired connectors, 5 m
(without LED)
For other cable options, see page 55.



Elbowed
XZCP1241L5

Straight
XZCP1141L5

Other connectors

Screw terminal
XZCC12FCM40B

Female, DIN 43650A, elbowed
XZCC43FCP40B

Electronic sensors XMLG

Electrical connection by M12 connector

For industrial and vacuum applications

Pressure range:	bar	−1 to 0	0 to 1	0 to 6	0 to 10	0 to 16	0 to 25	0 to 100	0 to 250	0 to 400
(1)	psi	−14.5 to 0	0 to 14.5	0 to 87	0 to 145	0 to 232	0 to 362.5	0 to 1450	0 to 3625	0 to 5800
Fluids controlled		Hydraulic oils, air, fresh water, some corrosive fluids from +5 to +257 °F (−15 to +125 °C)								
Ambient air temperature		+5 to +185 °F (−15 to +85 °C)								
Degree of protection		IP66 and IP67, NEMA 4 (conforming to IEC 60529)								
Product certification		CE, UL, CSA, GOST								
Voltage limits		8–33 Vdc for 4–20 mA, 11.4–33 Vdc for 0–10 V								
Dimensions Ø x L, mm (in.)		Ø22.8 x 58 (Ø0.90 x 2.28) not including connector								
Connections		**Fluid**: 1/4" NPT male *(2)*. **Electrical**: M12 connector *(3)* *(5)*.								
Type of output *(4)*		4–20 mA, 2-wire technique, 0–10 V, 3-wire technique								
Analog output	4–20 mA	**XMLGM01D23**	**XMLG001D23**	**XMLG006D23**	**XMLG010D23**	**XMLG016D23**	**XMLG025D23**	**XMLG100D23**	**XMLG250D23**	**XMLG400D23**
	0–10 V	**XMLGM01D73**	**XMLG001D73**	**XMLG006D73**	**XMLG010D73**	**XMLG016D73**	**XMLG025D73**	**XMLG100D73**	**XMLG250D73**	**XMLG400D73**

Available in bulk packs for selling in lots. Add **TQ** suffix to the catalog number. Example: XMLGM01D21 becomes XMLGM01D21**TQ**.

Electronic sensors XMLP

Electrical connection by DIN 43650A, Packard® Metri-Pak or M12 connectors

For industrial applications (hydraulic circuits, HVAC, pumps and compressors)

Pressure range (psi) *(3)* *(4)*		0 to 100	0 to 150	0 to 200	0 to 300	0 to 600	0 to 1000	0 to 2000	0 to 3000
Fluids controlled		Hydraulic oils, air, fresh water, gas, refrigeration fluids from −22 to +248 °F (−30 to +120 °C)							
Ambient air temperature		−22 to +212 °F (−30 to +100 °C)							
Degree of protection		IP65 (DIN 43650A), IP65, IP67 and IP69K (M12 and Packard Metri-Pak connector) (conforming to IEC 60529)							
Product certification		CE, UL, CSA							
Voltage limits		8–30 Vdc for 4–20 mA, 14–30 Vdc for 0–10 V							
Dimensions Ø x L, mm (in.)		30 x 26 (1.18 x 1.02) (not including connector)							
Fluid connection *(4)*		1/4"-18 NPT male, G1/4A male and 7/16-20UNF male or female							
Electrical connection *(5)*		DIN 43650A, Packard Metri-Pak, and M12 4 pin connector							
Type of output		4–20 mA, 2-wire technique, 0–10 V, 3-wire technique, 0.5–4.5 ratiometric							
Analog output 4–20 mA	Packard Metri-Pak	**XMLP100PP23**	**XMLP150PP23**	**XMLP200PP23**	**XMLP300PP23**	**XMLP600PP23**	**XMLP1K0PP23**	**XMLP2K0PP23**	**XMLP3K0PP23**
	M12 connector	**XMLP100PD23**	**XMLP150PD23**	**XMLP200PD23**	**XMLP300PD23**	**XMLP600PD23**	**XMLP1K0PD23**	**XMLP2K0PD23**	**XMLP3K0PD23**
Analog output 0–10 V	Packard Metri-Pak	**XMLP100PP73**	**XMLP150PP73**	**XMLP200PP73**	**XMLP300PP73**	**XMLP600PP73**	**XMLP1K0PP73**	**XMLP2K0PP73**	**XMLP3K0PP73**
	M12 connector	**XMLP100PD73**	**XMLP150PD73**	**XMLP200PD73**	**XMLP300PD73**	**XMLP600PD73**	**XMLP1K0PD73**	**XMLP2K0PD73**	**XMLP3K0PD73**

Available in bulk packs for selling in lots. Add **Q** suffix to the catalog number. Example: XMLP100PC23 becomes XMLP100PC23**Q**.

(1) Also available with bar range.
(2) Also available with DIN 43650A shown above.
(3) Also available with bar range.
(4) Also available in 6,000 and 10,000 psi range. Insert **06KP** into the catalog number for 6,000 psi version, and **10KP** for 10,000 psi version. Example: XMLP**06KP**D23 or XMLP**10KP**D23.
(5) Replace **D** in the catalog number with **P** or **C** to indicate Packard or DIN electrical connection. Example: XMLP100PD23 (M12 version) becomes XMLP100P**P**23 for Packard and XMLP100P**C**23 for DIN connector.

Switch with display ZMLP for use only with 4–20 mA analog output pressure transmitters

Type of switching mode			
Analog output	**Switching output**	**Hysteresis**	**Windows**
4–20 mA	PNP	**ZMLPA1P2SH**	**ZMLPA1P2SW**
4–20 mA	NPN	**ZMLPA1N2SH**	**ZMLPA1N2SW**
–	2 PNP	**ZMLPA2P0SH**	–
–	2 NPN	**ZMLPA2N0SH**	–
Displayed value range (bar)		−14.5 to 6000 with 27 selectable value ranges	
Degree of protection		IP65, IP67, and IP69K	
Product certification		CE, cULus	
Power supply		24 Vdc (17 to 33 Vdc)	
Electrical connection		Input: M12 female, 4 pin. Output: M12 male, 4 pin	

Accessories

Quick mounting bracket

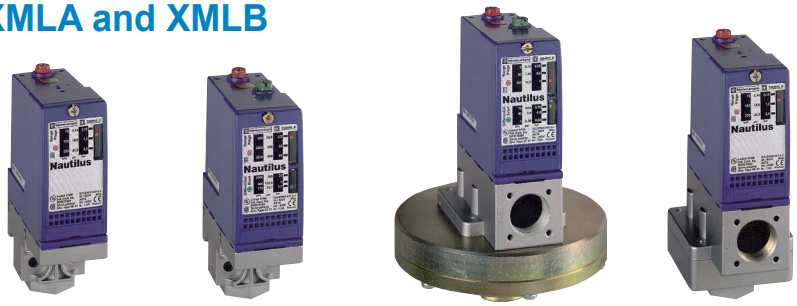
Horizontal plan
XMLPZLH01

Vertical plan or pipe
XMLPZLV01

OsiSense XM

Sensors for pressure control

Electromechanical pressure and vacuum switches XMLA and XMLB



Size: bar (psi)		**−0.28 to −1 (−4.06 to −14.5)**	**−0.5 to 5 (−7.25 to 72.5)**	**0.03 to 1 (0.435 to 14.5)**	**0.15 to 2.5 (2.17 to 36.25)**
Environmental specifications		Ambient air temperature: −13 to +158 °F (−25 to +70 °C). IP66: screw terminal models; IP65: connector models.			
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC-15; B300 (Ue = 240 V, Ie = 1.5 A; Ue = 120 V, Ie = 3 A) / DC-13; R300 (Ue = 250 V, Ie = 0.1 A)			
Product certification		CE, UL, CSA, CCC, BV, LROS, RINA, GL, DNV, VIT-SEPRO, GOST			
Fluid connection		1/4" NPT (female) (for other connections, consult the Customer Care Center)			
Electrical connection *(1)*		Screw terminals, tapped entry for 1/2" NPT cable connector.			
Fluids controlled		Hydraulic oils, fresh water, air up to +158 °F (+70 °C)		Hydraulic oils, air up to +320 °F (+160 °C)	Hydraulic oils, fresh water, air up to +158 °F (+70 °C)

Type XMLA—fixed differential, for detection of a single threshold

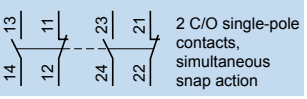
Setting range in bar (psi) of upper limit (PH) for pressure switches		-0.28 to -1 (-4.06 to -14.5) *(4)*	–	0.03 to 1 (.435 to 14.5)	0.15 to 2.5 (2.17 to 36.25)
Dimensions, H x W x D, mm (in.)		113 x 35 x 75 (4.45 x 1.38 x 2.95)	–	162 x 110 x 110 (6.38 x 4.33 x 4.33)	158 x 55 x 77.5 (6.22 x 2.17 x 3.05)
With setting scale	1 C/O single-pole, snap action contact	**XMLAM01V2S13**	–	**XMLA001R2S13**	**XMLA002A2S13**
Natural differential: bar (psi)	at low setting	0.24 ±0.05 (3.48 ±0.72) *(2)*	–	0.02 ±0.01 (0.29 ±0.14)	0.13 ±0.03 (1.88 ±0.43)
subtract from PH to get PB	at high setting	0.24 ±0.05 (3.48 ±0.72) *(2)*	–	0.04 ±0.01 (0.58 ±0.14)	0.13 ±0.03 (1.88 ±0.43)

Type XMLB—adjustable differential, regulation between 2 thresholds

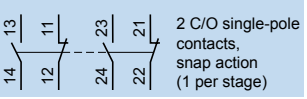
Setting range in bar (psi) of upper limit (PH) for pressure switches		-0.14 to -1 (-2.03 to -14.5) *(4)*	-0.5 to 5 (-7.25 to 72.5)	0.05 to 1 (0.72 to 14.5)	0.3 to 2.5 (4.35 to 36.25)
With setting scale	1 C/O single-pole, snap action contact	**XMLBM02V2S13**	**XMLBM05A2S13**	**XMLB001R2S13**	**XMLB002A2S13**
Possible differential: bar (psi)	Min. at low setting	0.13 ±0.02 (1.88 ±0.29) *(3)*	0.5 ±0.05 (7.25 ±0.72)	0.04 ±10 mbar (0.58 ±0.14)	0.16 -0.08 mbar +1.1 mbar (2.32 -0.01, +0.02)
subtract from PH to get PB	Min. at high setting	0.13 ±0.02 (1.88 ±0.29) *(3)*	0.5 ±0.05 (7.25 ±0.72)	0.06 ±20 mbar (0.87 ±0.29)	0.21 ±1.4 mbar (3.04 ±0.02)
	Max. at high setting	0.8 (11.6) *(3)*	6 (87)	0.75 (10.87)	1.75 (25.37)

XMLC and XMLD

XMLC



XMLD



Fluids controlled		Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)		Hydraulic oils, air up to +320 °F (+160 °C)	Hydraulic oils, fresh water, sea water, air up to +320 °F (+160 °C)

Type XMLC—adjustable differential, regulation between 2 thresholds

Setting range in bar (psi) of upper limit (PH) for pressure switches		-0.14 to -1 (-2.03 to -14.5) *(4)*	-0.55 to 5 (-7.97 to 72.5)	0.05 to 1 (0.725 to 14.5)	0.3 to 2.5 (4.35 to 36.25)
Dimensions (mm) H x W x D		158 x 55 x 90	158 x 55 x 90	150 x 110 x 110	145 x 55 x 90
With setting scale	2 C/O single-pole, snap action contacts	**XMLCM02V2S13**	**XMLCM05A2S13**	**XMLC001R2S13**	**XMLC002B2S13**
Possible differential: bar (psi)	Min. at low setting	0.13 ±0.02 (1.89 ±0.29) *(4)*	0.45 ±0.1 (6.52 ±1.45)	0.03 ±0.01 (0.43 ±0.14)	0.13 ±0.02 (1.89 ±0.29)
subtract from PH to get PB	Min. at high setting	0.14 ±0.02 (2.03 ±0.29) *(4)*	0.45 ±0.1 (6.52 ±1.45)	0.04 ±0.03 (0.58 ±0.43)	0.17 ±0.03 (2.47 ±0.43)
	Max. at high setting	0.8 (11.6) *(4)*	6 (87)	0.8 (11.6)	2 (29)

Type XMLD—fixed differential, dual stage, for detection at each threshold

Setting range	2nd stage switching point (PB2)	-0.12 to -1 (-1.74 to -14.5) *(4)*	–	0.12 to 1 (1.74 to 14.5)	0.34 to 2.5 (4.93 to 36.25)
bar (psi)	1st stage switching point (PB1)	-0.10 to -0.98 (-1.45 to -14.21)	–	0.04 to 0.92 (0.58 to 13.34)	0.2 to 2.36 (2.90 to 34.22)
	Spread between 2 stages (PB2 – PB1)	-0.02 to -0.88 (0.29 to 12.76)	–	0.08 to 0.73 (1.16 to 10.59)	0.14 to 1.5 (2.03 to 21.75)
Without setting scale: 2 C/O single-pole, snap action contacts (1 per stage)		**XMLDM02V1S13**	–	**XMLD001R1S13**	**XMLD002B1S13**
Natural differential: bar (psi)	at low setting	0.1 ±0.035 (1.45 ±0.51) *(2)*	–	0.03 ±0.01 (0.44 ±0.14)	0.14 ±0.04 (2.03 ±0.58)
subtract from PH1/PH2 to get PB1/PB2	at high setting	0.1 ±0.02 (1.45 ±0.29) *(2)*	–	0.07 ±0.04 (1.02 ±0.58)	0.19 ±0.07 (2.76 ±1.02)

(1) For electrical connection by DIN 43650A connector (IP65), replace the suffix **S13** in the catalog number with **C11**. Example: XMLB010A2**S13** becomes XMLB010A2**C11**.
(2) For vacuum switch: add the natural differential to PB to get PH.
(3) For vacuum switch: add the possible differential to PB to get PH.
(4) Setting range in bar (psi) of **lower** limit (**PB**) for vacuum switches.

	0.3 to 4 (4.35 to 58)	0.6 to 10 (8.7 to 145)	1 to 20 (14.5 to 290)	1.5 to 35 (21.75 to 507.5)	5 to 70 (72.5 to 1015)	10 to 160 (145 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	conforming to IEC 947-5-1 Appendix A, EN 60 947-5-1							
	Hydraulic oils, fresh water, sea water, air up to +158 °F (+70 °C)				Hydraulic oils up to +320 °F (+160 °C)			
	0.4 to 4 (5.8 to 58)	0.6 to 10 (8.7 to 145)	1 to 20 (14.5 to 290)	1.5 to 35 (21.75 to 507.5)	5 to 70 (72.5 to 1015)	10 to 160 (145 to 2320)	20 to 300 (290 to 4350)	30 to 500 (435 to 7250)
	113 x 35 x 75 (4.45 x 1.38 x 2.95)							
	XMLA004A2S13	**XMLA010A2S13**	**XMLA020A2S13**	**XMLA035A2S13**	**XMLA070D2S13**	**XMLA160D2S13**	**XMLA300D2S13**	**XMLA500D2S13**
	0.35 ±0.03 (5.07 ±0.43)	0.5 ±0.05 (7.25 ±0.72)	0.4 ±0.2 (5.8 ±2.9)	1.25 ±.25 (18.12 ±3.62)	3 ±1 (43.5 ±14.5)	5.5 ±1 (79.75 ±14.5)	16.5 ±3 (239.25 ±43.5)	20 ±6 (290 ±87)
	0.35 ±0.03 (5.07 ±0.43)	0.5 ±0.05 (7.25 ±0.72)	1 ±0.1 (14.5 ±1.45)	1.25 ±.25 (18.12 ±3.62)	7.5 ±1 (108.75 ±14.5)	18 ±3 (261 ±43.5)	35 ±6 (507.6 ±87)	45 ±10 (652.5 ±145)
	0.25 to 4 (3.62 to 58)	0.7 to 10 (10.15 to 145)	1.3 to 20 (18.9 to 290)	3.5 to 35 (50.75 to 507.5)	7 to 70 (101.5 to 1015)	10 to 160 (145 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	XMLB004A2S13	**XMLB010A2S13**	**XMLB020A2S13**	**XMLB035A2S13**	**XMLB070D2S13**	**XMLB160D2S13**	**XMLB300D2S13**	**XMLB500D2S13**
	0.02 ±0.01 (2.9 ±0.14)	0.57 ±0.05 (8.26 ±0.72)	1 ±0.25 (14.5 ±3.63)	1.7 -0.05, +0.7 (24.65 -7.25, +10.15)	4.7 -0.4, +0.7 (68.15 -5.8, +10.15)	9.3 -1.8, +1.5 (134.85 -26.1, +21.75)	19.4 -1.5, +1.7 (281.3 -21.75, +24.65)	23 -2.6, +3.8 (333.5 -37.7, +55.1)
	0.25 -0.03, +0.05 (3.62 -0.43, +0.72)	0.85 -0.1, +0.15 (12.32 -1.45, +2.17)	1.6 ±0.25 (23.20 ±3.63)	2.55 -0.5, +0.7 (36.97 -7.25, +10.15)	8.8 -0.6, +0.8 (127.6 -8.7, +11.6)	20.8 -1.9, +1.6 (301.6 -27.55, +23.2)	37 -1, +4 (536.5 -14.5, +58)	52.6 -14.8, +11.2 (762.7 -214.6, +162.4)
	2.4 (34.8)	7.5 (108.75)	11 (159.5)	20 (290)	50 (725)	100 (1450)	200 (2900)	300 (4350)

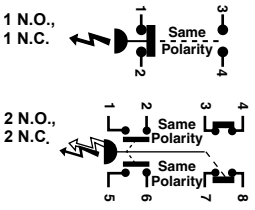
	Hydraulic oils, fresh water, sea water, air up to +320 °F (+160 °C)				Hydraulic oils up to +320 °F (+160 °C)			
	0.3 to 4 (4.35 to 58)	0.7 to 10 (10.15 to 145)	1.3 to 20 (18.85 to 290)	3.5 to 35 (50.75 to 507.5)	7 to 70 (101.5 to 1015)	12 to 160 (174 to 2320)	22 to 300 (319 to 4350)	30 to 500 (435 to 7250)
	113 x 46 x 90	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85	113 x 46 x 85
	XMLC004B2S13	**XMLC010B2S13**	**XMLC020B2S13**	**XMLC035B2S13**	**XMLC070D2S13**	**XMLC160D2S13**	**XMLC300D2S13**	**XMLC500D2S13**
	0.15 ±0.02 (2.18 ±0.29)	0.45 ±0.05 (6.53 ±0.72)	0.7 ±0.02 (10.15 ±2.9)	1 ±0.2 (14.5 ±2.9)	4.5 ±0.8 (65.25 ±11.6)	9 ±0.9 (130.5 ±13.05)	16 ±0.9 (232 ±13.05)	19 ±0.9 (275.5 ±13.05)
	0.17 ±0.02 (2.47 ±0.29)	0.7 ±0.01 (10.15 ±1.45)	1 ±0.2 (14.5 ±2.9)	1.5 ±0.5 (21.75 ±7.25)	8.9 ±0.8 (129.05 ±11.6)	21 ±0.9 (304.5 ±13.05)	35 ±0.9 (507.5 ±13.05)	52 ±0.9 (754 ±13.05)
	2.5 (36.25)	8 (116)	11 (159.5)	22 (319)	60 (870)	110 (1590)	240 (3480)	340 (4930)
	0.40 to 4 (5.8 to 58)	1.2 to 10 (17.4 to 145)	2.14 to 20 (31.03 to 290)	4.4 to 35 (63.8 to 507.5)	9.4 to 70 (136.3 to 1015)	16.5 to 160 (239.25 to 2320)	36 to 300 (522 to 4350)	41 to 500 (594.5 to 7250)
	0.19 to 3.79 (2.76 to 54.96)	0.52 to 9.32 (7.54 to 135.14)	0.9 to 18.76 (13.05 to 272.02)	1.9 to 32.5 (27.55 to 471.25)	6.6 to 67.2 (95.7 to 974.4)	10.5 to 154 (152.25 to 2233)	25 to 289 (362.5 to 4190.5)	25 to 484 (362.5 to 7018)
	0.21 to 2.18 (3.05 to 31.61)	0.68 to 5.8 (9.86 to 84.1)	1.24 to 9.55 (17.98 to 138.48)	2.5 to 20.4 (36.25 to 295.8)	2.8 to 46 (40.6 to 667)	6 to 83 (87 to 1203.5)	11 to 189 (159.5 to 2740.5)	16 to 244 (16 to 244)
	XMLD004B1S13	**XMLD010B1S13**	**XMLD020B1S13**	**XMLD035B1S13**	**XMLD070D1S13**	**XMLD160D1S13**	**XMLD300D1S13**	**XMLD500D1S13**
	0.15 ±0.03 (2.18 ±0.43)	0.45 ±0.05 (6.53 ±0.72)	0.7 ±0.15 (10.15 ±2.18)	1.5 ±0.03 (21.75 ±4.35)	5 ±1.5 (72.25 ±21.75)	8.8 ±1.5 (127.6 ±21.75)	17 ±2.5 (246.5 ±36.25)	21 ±3 (304.5 ±43.5)
	0.19 ±0.03 (2.76 ±0.43)	0.6 ±0.1 (8.7 ±1.45)	1.3 ±0.3 (18.85 ±4.35)	2.6 ±0.7 (37.7 ±10.15)	9.5 ±2 (137.75 ±29)	20 ±7 (290 ±101.5)	42 ±9 (609 ±130.5)	65 ±10 (942.5 ±145)

Square D 9012G

Electromechanical pressure switches
NEMA Type 4, 4X, 13 enclosures
adjustable differential

9012GAW5

9012GCW1



Contact Blocks

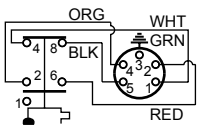
Range on decreasing pressure, psig	Adjustable differential *(1)* approximate at mid range	Maximum allowable pressure, psig	Class 9012 Type	
			SPDT	DPDT
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	.7–2	100	GAW1	GAW21
1–40	2.4–8	100	GAW2	GAW22
1.5–75	3.9–15	240	GAW4	GAW24
3–150	6.6–30	475	GAW5	GAW25
5–250	11–49	750	GAW6	GAW26
13–425	20–82	850	GBW1	GBW21
20–675	35–130	2000	GBW2	GBW22
Piston actuated—#440 stainless steel piston #303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring				
20–1000	65–200	1000	GCW1	GCW21
90–2900	187–560	15,000	GCW2	GCW22
170–5600	425–1050	20,000	GCW3	GCW23
270–9000	580–1500	25,000	GCW4	GCW24

Specifications

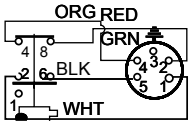
Fluids controlled	Air, water, hydraulic oils, gases, steam (depending on the model)	
Fluid connections	1/4" NPT (female) standard, Forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/4"-18 NPT *(2) (3)*	
Weight (approximate)	3 lb (1.36 kg)	
Voltage limits	600 V	
Continuous current	10 A	
Electrical connections	1/2"-14 NPTF, Pg 13.5, or ISO M20. For 20 x 1.5 mm electrical conduit entry, add **M** after the **W** in the catalog number for all Types.	
Standards/ratings	CE, IEC 60957.5.1, UL 508, CSA 3211-03. UL Marine listed for use on vessels longer than 65 ft where ignition protection is not required.	
Degree of protection	NEMA Type 4, 4X, 13 enclosures	
Temperature ratings	**Minimum**	**Maximum**
Ambient	−10 °F (−23 °C)	+185 °F (+85 °C)
Media	Diaphragm: −40 °F (−40 °C); Piston and all switches with Form Q4: −15 °F (−26 °C)	+250 °F (+120 °C)

Connection

Form H10



Form H11



SPDT snap switches contain two double-break contact elements (1 NO, 1 NC) that must be used on circuits of the same polarity.
DPDT snap switches contain two electrically separated sets of contact elements, allowing use on circuits of opposite polarity. Each set contains two double-break contact elements. (1 NO, 1 NC) that must be used on circuits of the same polarity.

Acceptable wire sizes: 12–22 AWG (0.5–2.5 mm²)

Recommended terminal clamp torque: 7 lb-in (0.79 N•m)

(1) The differential adds to the range setting and determines the operating point on rising pressure.
(2) Form M12 includes 1/4"-19 BSP pressure connection and Pg 13.5 electrical conduit entry.
(3) For other connections, consult the Customer Care Center.

Form	Description
G17	120 Vac or Vdc neon pilot light—clear lens
G18	120 Vac or Vdc neon pilot light—red lens
G21	24 Vdc only LED—clear lens
G22	24 Vdc only LED—red lens
H3	SPDT snap switch rated 1.1 A at 125 Vdc (minimum differential doubles)
H10, H11	Prewired 5-pin male receptacle (see the connection diagram above)
M12	Pg 13.5 electrical conduit thread and 1/4"-19 BSP pressure connection (available on 9012G•WM only)
V1	Range scale window
Y1	Special factory setting specified
Z	1/4" – 18 NPT external thread pressure connection

Other versions: **please visit our website at** www.tesensors.us

9012 NEMA Type 1 enclosure adjustable differential

9012GNO5

9012GQO2

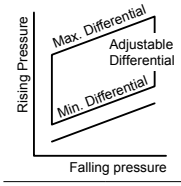
9012GNG1

Range on decreasing pressure, psig	Approximate mid range *(1)* differential (adds to the decreasing set point)	Maximum allowable pressure, psig	Class 9012 Type	
			Open Type	NEMA Type 1
Diaphragm actuated—Buna-N nitrile diaphragm, zinc plated steel housing				
0.2–10	0.6–1	100	GNO1	GNG1
1–40	1.6–5	100	GNO3	GNG3
1.5–75	2.5–6.5	240	GNO4	GNG4
3–150	4.8–13	475	GNO5	GNG5
5–250	8.5–20.5	750	GNO6	GNG6
13–425	20–41	850	GPO1	GPG1
20–675	35–66	2000	GPO2	GPG2
Piston actuated—#440 stainless steel piston #303 Stainless steel housing, Viton® fluorocarbon diaphragm and O-ring, Teflon® retaining ring				
20–1000	56–98	1000	GQO1	GQG1
90–2900	162–308	15,000	GQO2	GQG2
170–5600	355–563	20,000	GQO3	GQG3
270–9000	481–1050	25,000	GQO4	GQG4

Specifications

Fluids controlled		Air, water, hydraulic oils, gases, steam (depending on the model)	
Fluid connections		1/4" NPT (female) standard, Forms include G 1/4 (BSP) female, 1/4" NPTF, or 1/2"-14 NPT *(2)*	
Weight (approximate)		**Type 1:** 2 lb (0.91 kg); **Open:** 1.7 lb (0.77 kg)	
Voltage limits		600 V	
Continuous current		10 A	
Electrical connections		1/2" conduit entry, unthreaded	
Standards/ratings		CE, IEC 60957.5.1, UL 508, CSA 3211-03	
Degree of protection		NEMA Type 1 Enclosure	
Temperature ratings		**Minimum**	**Maximum**
Ambient		−10 °F (−23 °C)	+185 °F (+85 °C)
Media	**Diaphragm**	−40 °F (−40 °C)	+250 °F (+120 °C)
	Piston	−15 °F (−26 °C)	
	All with Form Q	−15 °F (−26 °C)	

Operating curves



Contact blocks

SPDT Form C contacts

Acceptable wire sizes:
12–22 AWG (0.5–2.5 mm²)

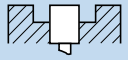
Recommended terminal clamp torque:
7 lb-in (0.79 N•m)

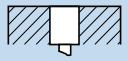
(1) Determines the operating point on rising pressure.
(2) For other connections, consult the Customer Care Center.

Available modifications for 9012G pressure switches, Open Type or NEMA Type 1 enclosure UL listed and CSA certified as industrial control equipment

Modification	Applies to	Form
Standard Buna-N nitrile diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q1
Ethylene propylene diaphragm in #316 stainless steel housing	GNG, GNO, GPG,GPO, GRG, GRO, GSG, GSO. Not available on 9012GRO1, GRG1, GNO1, GNG1.	Q3
Viton fluorocarbon diaphragm in #316 stainless steel housing	GNG, GNO, GPG, GPO, GRG, GRO, GSG, GSO. Not available on GRO1, GRG1, GNO1, GNG1	Q4
1/4-18 NPT external thread pressure connection	GNG, GNO, GRG, GRO	Z
1/2-14 NPT external thread, 1/4-18 NPTF internal thread pressure connection. Standard actuator only.	GNG, GNO, GRG, GRO	Z16
7/16-20 UNF-2B internal thread pressure connection	GNG, GNO, GPG, GPO, GQG, GQO, GRG, GRO, GSG, GSO, GTG, GTO	Z18

Inductive proximity sensors
Cylindrical metal


Non-flush mountable


Flush mountable

			Flush standard and increased range			
			M8		M12	
Nominal sensing distance Sn			1.5 mm	2.5 mm	2 mm	4 mm
Usable sensing distance S (mm) flush mountable / non-flush mountable			0–1.2	0–2	0–1.6	0–3.2
Temperature range			−13 to +158 °F (−25 to +70 °C)			
Product certification			CE, UL, CSA, CCC (in progress), C-TICK			
Degree of protection, conforming to IEC 60529			IP67		precabled: IP69K conforming to DIN 40050, IP68	

Sensors for DC applications

Output function *(for NC, replace the shaded A with B)*	**NO**		**A**	**A**	**A**	**A**
	NC		**B**	**B**	**B**	**B**
Dimensions, Ø x L, mm (in.)		Cable/connector	M8 x 33 (1.30) / M8 x 42 (1.65)		M12 x 35 (1.38) / M12 x 50 (1.97)	
3-wire	**PNP**	Cable (2 m)	**XS508B1PAL2**	**XS108B3PAL2**	**XS512B1PAL2**	**XS112B3PAL2**
		Connector M8 / M12	**XS508B1PAM8**	**XS108B3PAM8**	**XS512B1PAM12**	**XS112B3PAM12**
	NPN	Cable (2 m)	**XS508B1NAL2**	**XS108B3NAL2**	**XS512B1NAL2**	**XS112B3NAL2**
		Connector M8 / M12	**XS508B1NAM8**	**XS108B3NAM8**	**XS512B1NAM12**	**XS112B3NAM12**
2-wire	**non-polarized** *(1)*	Cable (2 m)	**XS508BSCAL2**	**XS608B3CAL2**	**XS512BSDAL2**	**XS612B3DAL2**
		Connector M12	**XS508BSCAL01M12**	**XS608B3CAL01M12**	**XS512BSDAM12**	**XS612B3DAM12**
Supply voltage range (V), including ripple			10–36	10–36	10–36	10–36
Switching capacity, max. (mA)		3-wire / 2-wire	200 / 100	200 / 100	200 / 100	200 / 100
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Residual current, open state (mA)			≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Voltage drop, closed state (V) at I nominal		3-wire / 2-wire	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4
Switching frequency (Hz)		3-wire / 2-wire	5000 / 4000	2500 / 3000	5000 / 4000	2500 / 2000
Dimensions, Ø x L, mm (in.)		Cable/connector	M8 x 51 (2.01) / M8 x 62 (2.44)		M12 x 53 (2.09) / M12 x 62 (2.44)	
3-wire	**PNP**	Cable (2 m)	**XS508BLPAL2**	**XS608B1PAL2**	**XS512BLPAL2**	**XS612B1PAL2**
		Connector M12	**XS508BLPAM12**	**XS608B1PAM12**	**XS512BLPAM12**	**XS612B1PAM12**
	NPN	Cable (2 m)	**XS508BLNAL2**	**XS608B1NAL2**	**XS512BLNAL2**	**XS612B1NAL2**
		Connector M12	**XS508BLNAM12**	**XS608B1NAM12**	**XS512BLNAM12**	**XS612B1NAM12**
2-wire	**non-polarized**	Cable (2 m)	**XS508B1DAL2**	**XS608B1DAL2**	**XS512B1DAL2**	**XS612B1DAL2**
		Connector M12	**XS508B1DAM12**	**XS608B1DAM12**	**XS512B1DAM12**	**XS612B1DAM12**
Supply voltage range (V), including ripple			10–58	10–58	10–58	10–58
Switching capacity, max. (mA)		3-wire / 2-wire	200 / 100	200 / 100	200 / 100	200 / 100
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Residual current, open state (mA)		2-wire	≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5
Voltage drop, closed state (V) at I nominal		3-wire / 2-wire	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4
Switching frequency (Hz)		3-wire / 2-wire	5000 / 4000	2500 / 3000	5000 / 4000	2500 / 2000

Multi-current/multi-voltage sensors for AC/DC applications

Dimensions, Ø x L, mm (in.)		Cable/connector	–	–	M12 x 53 (2.09) / M12 x 62 (2.44)	
2-wire		Cable (2 m)	–	–	**XS512B1MAL2**	**XS612B1MAL2**
		Connector 1/2"-20 UNF	–	–	**XS512B1MAU20**	**XS612B1MAU20**
Supply voltage range (V), including ripple			–	–	20–264	20–264
Switching capacity, max. (mA)			–	–	200	200
Output state LED (⊗)			–	–	⊗	⊗
Residual current, open state (mA)			–	–	≤ 0.8	≤ 0.8
Voltage drop, closed state (V) at I nominal			–	–	≤ 5.5	≤ 5.5
Switching frequency (Hz)			–	–	25 AC / 1000 DC	25 AC / 1000 DC

(1) Polarized for M8 short.

Accessories

Mounting for cylindrical sensors

Mounting clamp with indexing pin for cylindrical sensors.

M8	**XSZB108**
M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Adaptable female plug-in connectors

M8	Straight		Elbowed
Metal ring	**XZCC8FDM30S**		**XZCC8FCM30S**
M12 (4 pin)			
Metal ring	**XZCC12FDM40B**		**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**		**XZCC12FCP40B**

M18		M30		Non-flush increased range M12	M18	M30
5 mm	8 mm	10 mm	15 mm	7 mm	12 mm	22 mm
0–4	0–6.4	0–8	0–12	0–5.6	0–9.6	0–17.6
−13 to +158 °F (−25 to +70 °C)				−25 to +70		
CE, UL, CSA, CCC (in progress), C-TICK				CE, UL, CSA, CCC (in progress), C-TICK		
(with connector: IP67)				precabled: IP69K conforming to DIN 40050, IP68 (with connector: IP67)		
A B	A B	A B	A B	A B	A B	A B
M18 x 39 (1.54) / M18 x 50 (1.97)		M30 x 43 (1.69) / M30 x 55 (2.17)		–		
XS518B1PAL2	**XS118B3PAL2**	**XS530B1PAL2**	**XS130B3PAL2**	–		
XS518B1PAM12	**XS118B3PAM12**	**XS530B1PAM12**	**XS130B3PAM12**	–		
XS518B1NAL2	**XS118B3NAL2**	**XS530B1NAL2**	**XS130B3NAL2**	–		
XS518B1NAM12	**XS118B3NAM12**	**XS530B1NAM12**	**XS130B3NAM12**	–		
XS518BSDAL2	**XS618B3DAL2**	**XS530BSDAL2**	**XS630B3DAL2**	–		
XS518BSDAM12	**XS618B3DAM12**	**XS530BSDAM12**	**XS630B3DAM12**	–		
10–36	10–36	10–36	10–36	–		
200 / 100	200 / 100	200 / 100	200 / 100	–		
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	–		
≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–		
≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	–		
2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	–		
M18 x 62 (2.44) / M18 x 74 (2.91)		M30 x 62 (2.44)		M12 x 55 (2.17) / M12 x 65 (2.56)	M18 x 62 (2.44) / M18 x 74 (2.91)	M30 x 62 (2.44) / M30 x 74 (2.91)
XS518BLPAL2	**XS618B1PAL2**	**XS530BLPAL2**	**XS630B1PAL2**	**XS612B4PAL2**	**XS618B4PAL2**	**XS630B4PAL2**
XS518BLPAM12	**XS618B1PAM12**	**XS530BLPAM12**	**XS630B1PAM12**	**XS612B4PAM12**	**XS618B4PAM12**	**XS630B4PAM12**
XS518BLNAL2	XS618B1NAL2	XS530BLNAL2	XS630B1NAL2	**XS612B4NAL2**	**XS618B4NAL2**	**XS630B4NAL2**
XS518BLNAM12	XS618B1NAM12	XS530BLNAM12	XS630B1NAM12	**XS612B4NAM12**	**XS618B4NAM12**	**XS630B4NAM12**
XS518B1DAL2	XS618B1DAL2	XS530B1DAL2	XS630B1DAL2	–	–	–
XS518B1DAM12	XS618B1DAM12	XS530B1DAM12	XS630B1DAM12	–	–	–
10–58	10–58	10–58	10–58	10–58	10–58	10–58
200 / 100	200 / 100	200 / 100	200 / 100	200 / –	200 / –	200 / –
★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
≤ 0.5	≤ 0.5	≤ 0.5	≤ 0.5	–	–	–
≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / ≤ 4	≤ 2 / –	≤ 2 / –	≤ 2 / –
2000 / 3000	1000 / 1000	1000 / 2000	500 / 500	2500 / –	1000 / –	500 / –
M18 x 62 (2.44) / M18 x 73 (2.87)		M30 x 62 (2.44) / M30 x 73 (2.87)		–	M18 x 60 (2.36) / M18 x 72 (2.84)	M30 x 63 (2.48) / M30 x 74 (2.91)
XS518B1MAL2	**XS618B1MAL2**	**XS530B1MAL2**	**XS630B1MAL2**	–	**XS618B4MAL2**	**XS630B4MAL2**
XS518B1MAU20	**XS618B1MAU20**	**XS530B1MAU20**	**XS630B1MAU20**	–	**XS618B4MAU20**	**XS630B4MAU20**
20–264	20–264	20–264	20–264	–	20–264	20–264
300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	300 AC / 200 DC	–	300 AC / 200 DC	300 AC / 200 DC
⊗	⊗	⊗	⊗	–	⊗	⊗
≤ 0.8	≤ 0.8	≤ 0.8	≤ 0.8	–	≤ 0.8	≤ 0.8
≤ 5.5	≤ 5.5	≤ 5.5	≤ 5.5	–	≤ 5.5	≤ 5.5
25 AC / 1000 DC	25 AC / 1000 DC	25 AC / 500 DC	25 AC / 500 DC	–	25 AC / 1000 DC	25 AC / 300 DC

PUR prewired connectors *(1)*

Straight

Elbowed

M8 (3 pin)		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

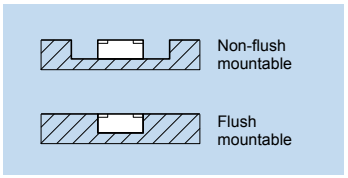
1/2"		
	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)			
	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(1) For other cable options, see page 55.

OsiSense XS

Inductive proximity sensors
Rectangular plastic



mm (in.)	Ø 8 x 22 x 8 (0.32 x 0.87 x 0.32)	Ø 15 x 32 x 8 (0.59 x 1.26 x 0.32)	Ø 26 x 26 x 13 (1.02 x 1.02 x 0.51)	Ø 40 x 40 x 15 (1.58 x 1.58 x 0.59)	Ø 80 x 80 x 26 (3.15 x 3.15 x 1.02)
Nominal sensing distance Sn	**2.5** mm	**5** mm	**10** mm	**15** mm	**40** mm
Usable sensing distance S (mm) flush mountable / non-flush mountable	0–2	0–4	0–8	0–12	0–32
Fine adjustment zone (mm) flush mountable / non-flush mountable	–	–	–	–	–
Suitability for flush mounting (metal environment)	flush mountable	flush mountable	flush mountable	flush mountable	flush mountable
Temperature range	−13 to +158 °F (−25 to +70 °C)				
Product certification	CE	CE, UL, CSA, C-TICK			
Degree of protection, conforming to IEC 60529	precabled: IP68 (with connector: IP67)				

Sensors for DC applications

Connection				**Precabled, PvR (2 m)**				
2-wire (non-polarized)		**NO or NC**	programmable	–	–	–	–	–
2-wire	**non-polarized**	**NO**		**XS7J1A1DAL2**	**XS7F1A1DAL2**	**XS7E1A1DAL2**	**XS7C1A1DAL2**	**XS7D1A1DAL2**
		NC		**XS7J1A1DBL2**	**XS7F1A1DBL2**	**XS7E1A1DBL2**	**XS7C1A1DBL2**	**XS7D1A1DBL2**
4-wire	**PNP**	**NO + NC**	complementary outputs	–	–	–	–	–
	NPN	**NO + NC**	complementary outputs	–	–	–	–	–
3-wire	**PNP**	**NO**		**XS7J1A1PAL2**	**XS7F1A1PAL2**	**XS7E1A1PAL2**	**XS7C1A1PAL2**	**XS7D1A1PAL2**
		NC		**XS7J1A1PBL2**	**XS7F1A1PBL2**	**XS7E1A1PBL2**	**XS7C1A1PBL2**	**XS7D1A1PBL2**
	NPN	**NO**		**XS7J1A1NAL2**	**XS7F1A1NAL2**	**XS7E1A1NAL2**	**XS7C1A1NAL2**	**XS7D1A1NAL2**
		NC		**XS7J1A1NBL2**	**XS7F1A1NBL2**	**XS7E1A1NBL2**	**XS7C1A1NBL2**	**XS7D1A1NBL2**
Connection				**M8 connector**				**M12 connector**
2-wire	**non-polarized**	**NO**		**XS7J1A1DAL01M8** *(1)*	**XS7F1A1DAL01M8** *(1)*	**XS7E1A1DAM8**	**XS7C1A1DAM8**	**XS7D1A1DAM12**
		NC		**XS7J1A1DBL01M8** *(1)*	**XS7F1A1DBL01M8** *(1)*	**XS7E1A1DBM8**	**XS7C1A1DBM8**	**XS7D1A1DBM12**
3-wire	**PNP**	**NO**		**XS7J1A1PAL01M8** *(1)*	**XS7F1A1PAL01M8** *(1)*	**XS7E1A1PAM8**	**XS7C1A1PAM8**	**XS7D1A1PAM12**
		NC		**XS7J1A1PBL01M8** *(1)*	**XS7F1A1PBL01M8** *(1)*	**XS7E1A1PBM8**	**XS7C1A1PBM8**	**XS7D1A1PBM12**
	NPN	**NO**		**XS7J1A1NAL01M8** *(1)*	**XS7F1A1NAL01M8** *(1)*	**XS7E1A1NAM8**	**XS7C1A1NAM8**	**XS7D1A1NAM12**
		NC		**XS7J1A1NBL01M8** *(1)*	**XS7F1A1NBL01M8** *(1)*	**XS7E1A1NBM8**	**XS7C1A1NBM8**	**XS7D1A1NBM12**
Supply voltage range (V), including ripple				10–36	10–36	10–36	10–36	10–36
Switching capacity, max. (mA)				100	100	100	100	100
Short-circuit protection (★) / Output state LED (⊗) / Power on LED (⊗)				★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –	★ / ⊗ / –
Voltage drop, closed state (V) at I nominal cable / Connector				≤ 4 / ≤ 2	≤ 4 / ≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz) cable / Connector				4000 / 2000	5000 / 2000	1000	1000	100

Multi-current/multi-voltage sensors for AC/DC applications

Connection								
2-wire		**AC/DC**	**NO**	–	–	–	–	–
			NC	–	–	–	–	–
		AC	**NO** or **NC** programmable	–	–	–	–	–
		AC/DC	**NO** or **NC** programmable	–	–	–	–	–
Connection								
2-wire		**AC/DC**	**NO**	–	–	–	–	–
			NC	–	–	–	–	–
Supply voltage range (V), including ripple				–	–	–	–	–
Switching capacity, max. (mA)				–	–	–	–	–
Short-circuit protection (★) / Output state LED (⊗) / Power on LED (⊗)				–	–	–	–	–
Residual current, open state (mA)				–	–	–	–	–
Voltage drop, closed state (V) at I nominal				–	–	–	–	–
Switching frequency (Hz)				–	–	–	–	–

(1) M8 connector on pigtail connector (0.15 m).

Accessories

Mounting for flat sensors

	flat	90 °
8x22x8	**XSZBJ00**	**XSZBJ90**
15x32x8	**XSZBF00**	**XSZBF90**
26x26x13	**XSZBE00**	**XSZBE90**
40x40x15	**XSZBC00**	**XSZBC90**

Adaptable female plug-in connectors

M8	Straight	Elbowed
Metal ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Metal ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**

	Ø 40 x 40 x 70 (1.58 x 1.58 x 2.76)			Ø 40 x 40 x 117 (1.58 x 1.58 x 4.61)		Ø 26 x 26 x 13 (1.02 x 1.02 x 0.51)	Ø 40 x 40 x 15 (1.58 x 1.58 x 0.59)	Ø 80 x 80 x 26 (3.15 x 3.15 x 1.02)
	15 mm	20 mm	40 mm	20 mm	40 mm	15 mm	25 mm	60 mm
	0–12	0–16	0–32	0–16	0–32	0–8 / 0–12	0–12 / 0–20	0–32 / 0–48
						5–10 / 5–15	8–15 / 8–25	20–40 / 20–60
	flush mountable	flush mountable	non-flush mountable	flush mountable	non-flush mountable	flush mountable or non-flush mountable via teach mode		
	−13 to +158 °F (−25 to +70 °C)			−13 to +158 °F (−25 to +70 °C)		−13 to +158 °F (−25 to +70 °C)		
	CE, UL, CSA, CCC, C-TICK			CE, UL, CSA, CCC, C-TICK		CE, UL, CSA, CCC, C-TICK		
	IP67 and IP69K			IP67 and IP69K		precabled: IP68 (with connector: IP67)		
	M12 connector			**Screw terminals** *(2)*		**Precabled (2 m)**		
	–	–	–	**XS8C4A1DPN12**	**XS8C4A4DPN12**	–	–	–
	XS7C2A1DAM12	**XS8C2A1DAM12**	**XS8C2A4DAM12**	–	–	–	–	–
	XS7C2A1DBM12	**XS8C2A1DBM12**	**XS8C2A4DBM12**	–	–	–	–	–
	XS7C2A1PCM12	**XS8C2A1PCM12**	**XS8C2A4PCM12**	**XS8C4A1PCN12**	**XS8C4A4PCN12**	–	–	–
	XS7C2A1NCM12	**XS8C2A1NCM12**	**XS8C2A4NCM12**	**XS8C4A1NCN12**	**XS8C4A4NCN12**	–	–	–
	XS7C2A1PAM12	–	–	–	–	**XS8E1A1PAL2**	**XS8C1A1PAL2**	**XS8D1A1PAL2**
	XS7C2A1NAM12	–	–	–	–	**XS8E1A1PBL2**	**XS8C1A1PBL2**	**XS8D1A1PBL2**
	XS7C2A1PBM12	–	–	–	–	**XS8E1A1NAL2**	**XS8C1A1NAL2**	**XS8D1A1NAL2**
	XS7C2A1NBM12	–	–	–	–	**XS8E1A1NBL2**	**XS8C1A1NBL2**	**XS8D1A1NBL2**
						M8 connector		**M12 connector**
		–	–	–	–	–	–	–
		–	–	–	–	–	–	–
		–	–	–	–	**XS8E1A1PAM8**	**XS8C1A1PAM8**	**XS8D1A1PAM12**
		–	–	–	–	**XS8E1A1PBM8**	**XS8C1A1PBM8**	**XS8D1A1PBM12**
		–	–	–	–	**XS8E1A1NAM8**	**XS8C1A1NAM8**	**XS8D1A1NAM12**
		–	–	–	–	**XS8E1A1NBM8**	**XS8C1A1NBM8**	**XS8D1A1NBM12**
	12–48					10–36	10–36	10–36
	4-wire version = 200; 2-wire version = 1.5–100					100	200	200
	4-wire version = ★ / ⊗ / ⊗; 2-wire version = ★ / ⊗ / –					★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / ⊗
	4-wire version = ≤ 2; 2-wire version = ≤ 4					≤ 2	≤ 2	≤ 2
	flush version: 300; non-flush version: 200					2000	1000	150
	1/2"-20 UNF connector			**Screw terminals** *(2)*		**Precabled (2 m)**		
	XS7C2A1MAU20	**XS8C2A1MAU20**	**XS8C2A4MAU20**	–	–	**XS8E1A1MAL2**	**XS8C1A1MAL2**	**XS8D1A1MAL2**
	XS7C2A1MAU20	**XS8C2A1MBU20**	**XS8C2A4MBU20**	–	–	**XS8E1A1MBL2**	**XS8C1A1MBL2**	**XS8D1A1MBL2**
		–	–	–	–	–	–	–
		–	–	**XS8C4A1MPN12**	**XS8C4A4MPN12**	–	–	–
						1/2"-20 UNF connector		
		–	–	–	–	**XS8E1A1MAL01U20**	**XS8C1A1MAL01U20**	**XS8D1A1MAU20**
		–	–	–	–	**XS8E1A1MBL01U20**	**XS8C1A1MBL01U20**	**XS8D1A1MBU20**
	20–264					20–264	20–264	20–264
	AC/DC version = 300 / 200					200 AC or DC	300 AC / 200 DC	300 AC / 200 DC
	– / ⊗ / –					– / ⊗ / ⊗	– / ⊗ / ⊗	– / ⊗ / ⊗
	AC/DC version = ≤ 1.5					≤ 1.5	≤ 1.5	≤ 1.5
	≤ 5.5					≤ 5.5	≤ 5.5	≤ 5.5
	25 AC / 50 DC					2000	1000	150

(2) Sensors come with 1/2" NPT conduit fitting and screw terminals.
For an M20 connector, change the suffix from **N12** to **P20**. Example: XS8C4A4MP**P20.**
For a Pg 13.5 cable entry, change **N12** to **G13**. Example: XS8C4A4PC**G13**.
For a 7/8 in. mini-style connector, change **N12** to **U78**. Example: XS7C4A1MP**U78**.

PUR prewired connectors *(3)*

Straight

Elbowed

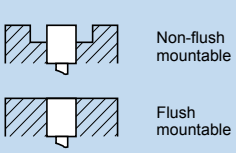
M8 (3 pin)	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

1/2"	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(3) For other cable options, see page 55.

Inductive proximity sensors
Cylindrical Plastic



	M8	M12	M18	M30
Nominal sensing distance Sn	**2.5** mm	**4** mm	**8** mm	**15** mm
Operating zone (mm)	0–2	0–3.2	0–6.4	0–12
Suitability for flush mounting (metal environment)	non-flush mountable			
Temperature range	−13 to +158 °F (−25 to +70 °C)			
Product certification	CE, UL, CSA, CCC, C-TICK			
Degree of protection, conforming to IEC 60529	IP67	precabled: IP68 (with connector: IP67)		

Sensors for DC applications

Connection				**Precabled, PvR (2 m)**			
Dimensions, Ø x L, mm (in.)				M8 x 33 (1.30)	M12 x 33 (1.30)	M18 x 33.5 (1.32)	M30 x 40.5 (1.59)
2-wire (non-polarized)		**NO or NC**	programmable	–	–	–	–
4-wire	**PNP**	**NO + NC**	complementary outputs	–	–	–	–
	NPN	**NO + NC**	complementary outputs	–	–	–	–
3-wire	**PNP**	**NO**		**XS4P08PA340**	**XS4P12PA340**	**XS4P18PA340**	**XS4P30PA340**
		NC		**XS4P08PB340**	**XS4P12PB340**	**XS4P18PB340**	**XS4P30PB340**
	NPN	**NO**		**XS4P08NA340**	**XS4P12NA340**	**XS4P18NA340**	**XS4P30NA340**
		NC		**XS4P08NB340**	**XS4P12NB340**	**XS4P18NB340**	**XS4P30NB340**
Connection				**M8 connector**	**M12 connector**		
Dimensions, Ø x L, mm (in.)				M8 x 42 (1.65)	M12 x 48 (1.89)	M18 x 48 (1.89)	M30 x 50 (1.97)
3-wire	**PNP**	**NO**		**XS4P08PA340S**	**XS4P12PA340D**	**XS4P18PA340D**	**XS4P30PA340D**
		NC		**XS4P08PB340S**	**XS4P12PB340D**	**XS4P18PB340D**	**XS4P30PB340D**
	NPN	**NO**		**XS4P08NA340S**	**XS4P12NA340D**	**XS4P18NA340D**	**XS4P30NA340D**
		NC		**XS4P08NB340S**	**XS4P12NB340D**	**XS4P18NB340D**	**XS4P30NB340D**
Supply voltage range (V), including ripple				10–38	10–38	10–38	10–38
Switching capacity, max. (mA)				200	200	200	200
Short-circuit protection (★) / Output state LED (⊗)				★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal				≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)				5000	5000	2000	1000

Multi-current/multi-voltage sensors for AC/DC applications

Connection				**Precabled, PvR (2 m)**			
Dimensions, Ø x L, mm (in.)				M8 x 50 (1.97)	M12 x 50 (1.97)	M18 x 60 (2.36)	M30 x 60 (2.36)
2-wire	**AC/DC**	**NO**		**XS4P08MA230**	**XS4P12MA230**	**XS4P18MA230**	**XS4P30MA230**
Not short-circuit protected *(1)*		**NC**		**XS4P08MB230**	**XS4P12MB230**	**XS4P18MB230**	**XS4P30MB230**
	AC	**NO** or **NC**	programmable	–	–	–	–
	AC/DC	**NO** or **NC**	programmable	–	–	–	–
Connection				**1/2" connector**			
Dimensions, Ø x L, mm (in.)				M8 x 61 (2.40)	M12 x 61 (2.40)	M18 x 70 (2.76)	M30 x 70 (2.76)
2-wire	AC/DC	**NO**		**XS4P08MA230K**	**XS4P12MA230K**	**XS4P18MA230K**	**XS4P30MA230K**
Not short-circuit protected *(1)*		**NC**		**XS4P08MB230K**	**XS4P12MB230K**	**XS4P18MB230K**	**XS4P30MB230K**
Supply voltage range (V), including ripple				20–264	20–264	20–264	20–264
Switching capacity, max. (mA)				100	200	300 AC / 200 DC	300 AC / 200 DC
Output state LED (⊗)				⊗	⊗	⊗	⊗
Residual current, open state (mA)				≤ 0.6	≤ 0.6	≤ 0.6	≤ 0.6
Voltage drop, closed state (V) at I nominal				≤ 5.5	≤ 5.5	≤ 5.5	≤ 5.5
Switching frequency (Hz)				25 AC / 3000 DC	25 AC / 3000 DC	25 AC / 2000 DC	25 AC / 1000 DC

(1) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.

Accessories

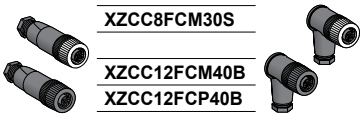
Mounting for cylindrical sensors

Mounting clamp with indexing pin for cylindrical sensors.

M4	**XSZB104**	**M12**	**XSZB112**
M5	**XSZB105**	**M18**	**XSZB118**
M6.5	**XSZB165**	**M30**	**XSZB130**
M8	**XSZB108**		

Adaptable female plug-in connectors

M8	Straight	Elbowed
Metal ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Metal ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**



			Ø4	M5	Ø6.5	
Nominal sensing distance Sn			1 mm	1 mm	1.5 mm	2.5 mm
Operating zone (mm)			0–0.8	0–0.8	0–1.2	0–2
Suitability for flush mounting (metal environment)			flush mountable			
Temperature range			−13 to +158 °F (−25 to +70 °C)			
Product certification			CE, UL, CSA, CCC, C-TICK			
Degree of protection, conforming to IEC 60529			IP67			

Sensors for DC applications

Connection			**Precabled, PvR (2 m)**			
Dimensions, Ø x L, mm (in.)			Ø4 x 29 (0.16 x 1.14)	M5 x 29 (1.14)	Ø6.5 x 33 (0.26 x 1.30)	
3-wire	**PNP**	**NO**	**XS1L04PA310**	**XS1N05PA310**	**XS506B1PAL2**	**XS106B3PAL2**
		NC	–	–	**XS506B1PBL2**	**XS106B3PBL2**
	NPN	**NO**	**XS1L04NA310**	**XS1N05NA310**	**XS506B1NAL2**	**XS106B3NAL2**
		NC	–	–	**XS506B1NBL2**	**XS106B3NBL2**
2-wire (polarized)		**NO**	–	–	**XS506BSCAL2**	**XS606B3CAL2**
		NC	–	–	**XS506BSCBL2**	**XS606B3CBL2**
Connection			**M8**			
Dimensions, Ø x L, mm (in.)			Ø4 x 29 (0.16 x 1.14)	M5 x 29 (1.14)	Ø6.5 x 33 (0.26 x 1.30)	
3-wire	**PNP**	**NO**	**XS1L04PA310S**	**XS1N05PA311S** *(1)*	**XS506B1PAM8**	**XS106B3PAM8**
		NC	–	–	**XS506B1PBM8**	**XS106B3PBM8**
	NPN	**NO**	**XS1L04NA310S**	**XS1N05NA311S** *(1)*	**XS506B1NAM8**	**XS106B3NAM8**
		NC	–	–	**XS506B1NBM8**	**XS106B3NBM8**
Connection			**M12**			
2-wire (polarized)		**NO**	–	–	**XS506BSCAL01M12**	**XS506B3CAL01M12**
Supply voltage range (V), including ripple			5–30	5–30	10–36	
Switching capacity, max. (mA)		3-wire / 2-wire	100 / –	100 / –	200 / 100	
Short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	
Voltage drop, closed state (V) at I nominal		3-wire / 2-wire	≤ 2 / –	≤ 2 / –	≤ 2 / ≤ 4	
Switching frequency (Hz)		3-wire / 2-wire	5000 / –	5000 / –	5000 / 4000	2500 / 3000

(1) Stainless steel sensors, Sn = 0.8 mm.

PUR prewired connectors *(1)*

Straight

Elbowed

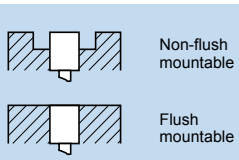
M8 (3 pin)		
	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

1/2"		
	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)			
	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

(1) For other cable options, see page 55.

Inductive proximity sensors
Multi-voltage with short-circuit protection



		M12	M18	M30
Sensing distance, Sn	flush mountable	**2** mm	**5** mm	**10** mm
	non-flush mountable	**4** mm	**8** mm	**15** mm
Operating zone (mm)	flush mountable	0–1.6	0–4	0–8
	non-flush mountable	0–3.2	0–6.4	0–12
Suitability for flush mounting (metal environment)		flush mountable or non-flush mountable, depending on the model		
Case: M (metal), P (plastic)		M		
Temperature range		−13 to +158 °F (−25 to +70 °C)		
Degree of protection, conforming to IEC 60529		IP68 (with connector: IP67)		
Product certification		CE, UL, CSA, CCC, C-TICK		
Dimensions, Ø x L, mm (in.)	Cable/connector	M12 x 55 (2.17) / M12 x 66 (2.60)	M18 x 60 (2.36) / M18 x 72 (2.84)	M30 x 60 (2.36) / M30 x 72 (2.84)

Sensors for DC applications

Connection						
4-wire	**PNP**	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	NPN	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	PNP+NPN	**NO/NC**	flush mountable (metal)	–	–	–
	programmable		non-flush mountable (metal)	–	–	–
			non-flush mountable (plastic)	–	–	–
Connection						
4-wire	**PNP**	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	NPN	**NO + NC**	flush mountable	–	–	–
			non-flush mountable	–	–	–
	PNP+NPN	**NO/NC**	flush mountable (metal)	–	–	–
	programmable		non-flush mountable (metal)	–	–	–
			non-flush mountable (plastic)	–	–	–
Supply voltage range (V), including ripple				–	–	–
Switching capacity, max. (mA)				–	–	–
Short-circuit protection (★) / Output state LED (⊗)				–	–	–
Voltage drop, closed state (V) at I nominal				–	–	–
Switching frequency (Hz)				–	–	–

Multi-current/multi-voltage sensors for AC/DC applications

Connection			**Precabled, PvR (2 m)**		
2-wire AC/DC	**NO**	flush mountable	**XS1M12MA250**	**XS1M18MA250**	**XS1M30MA250**
		non-flush mountable	**XS2M12MA250**	**XS2M18MA250**	**XS2M30MA250**
	NC	flush mountable	**XS1M12MB250**	**XS1M18MB250**	**XS1M30MB250**
		non-flush mountable	**XS2M12MB250**	**XS2M18MB250**	**XS2M30MB250**
Connection			**1/2"-20 UNF connector**		
2-wire AC/DC	**NO**	flush mountable	**XS1M12MA250K**	**XS1M18MA250K**	**XS1M30MA250K**
		non-flush mountable	**XS2M12MA250K**	**XS2M18MA250K**	**XS2M30MA250K**
	NC	flush mountable	**XS1M12MB250K**	**XS1M18MB250K**	**XS1M30MB250K**
		non-flush mountable	**XS2M12MB250K**	**XS2M18MB250K**	**XS2M30MB250K**
Supply voltage range (V), 50-60 Hz			20–264		
Switching capacity, max. (mA)			5–200	5–200 AC, 5–300 DC	
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗		
Residual current, open state (mA)			≤ 1.5		
Voltage drop, closed state (V) at I nominal			≤ 5.5		
Switching frequency (Hz)			25 AC, 4000 DC	25 AC, 2000 DC	25 AC, 2000 DC *(1)*

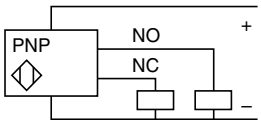
(1) 25 AC, 1000 DC for non-flush mountable Ø30 mm.

PNP or NPN
NO + NC Complementary outputs

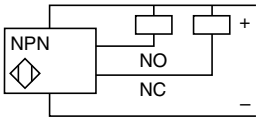
PNP + NPN outputs,
NO or NC programmable

	M8	M12	M18	M30	M12	M18	M30
	1.5 mm	**2** mm	**5** mm	**10** mm	**2** mm	**5** mm	**10** mm
	2.5 mm	**4** mm	**8** mm	**15** mm	**4** mm	**8** mm	**15** mm
	0–1.2	0–1.6	0–4	0–8	0–1.6	0–4	0–8
	0–2	0–3.2	0–6.4	0–12	0–3.2	0–6.4	0–12
	flush mountable or non-flush mountable depending on the model				flush mountable or non-flush mountable depending on the model		
	M				M or P depending on the model		
	−13 to +158 °F (−25 to +70 °C)				−13 to +158 °F (−25 to +70 °C)		
	IP67	IP68 (with connector: IP67)			IP68 (with connector: IP67)		
	CE, UL, CSA, CCC, C-TICK				CE, UL, CSA, CCC, C-TICK		
	M8x50 (1.97) / M8x61 (2.40)	M12x33 (1.30) / M12x48 (1.89)	M18x36.5 (1.44) / M18x49 (1.93)	M30x40.5 (1.59) / M30x53 (2.09)	M12x50 (1.97) / M12x61 (2.40)	M18x60 (2.36) / M18x72 (2.84)	M30x60 (2.36) / M30x72 (2.84)
	Precabled, PvR (2 m)				**Precabled, PvR (2 m)**		
	XS1M08PC410	**XS1N12PC410**	**XS1N18PC410**	**XS1N30PC410**	–	–	–
	XS2M08PC410	**XS2N12PC410**	**XS2N18PC410**	**XS2N30PC410**	–	–	–
	XS1NM08NC410	**XS1N12 NC410**	**XS1N18NC410**	**XS1N30NC410**	–	–	–
	XS2M08NC410	**XS2N12 NC410**	**XS2N18NC410**	**XS2N30NC410**	–	–	–
	–	–	–	–	**XS1M12KP340**	**XS1M18KP340**	**XS1M30KP340**
	–	–	–	–	**XS2M12KP340**	**XS2M18KP340**	**XS2M30KP340**
	–	–	–	–	**XS4P12KP340**	**XS4P18KP340**	**XS4P30KP340**
	M12 connector				**M12 connector**		
	XS1M08PC410D	**XS1N12PC410D**	**XS1N18PC410D**	**XS1N30PC410D**	–	–	–
	XS2M08PC410D	**XS2N12PC410D**	**XS2N18PC410D**	**XS2N30PC410D**	–	–	–
	XS1M08NC410D	**XS1N12 NC410D**	**XS1N18NC410D**	**XS1N30NC410D**	–	–	–
	XS2M08NC410D	**XS2N12 NC410D**	**XS2N18NC410D**	**XS2N30NC410D**	–	–	–
	–	–	–	–	**XS1M12KP340D**	**XS1M18KP340D**	**XS1M30KP340D**
	–	–	–	–	**XS2M12KP340D**	**XS2M18KP340D**	**XS2M30KP340D**
	–	–	–	–	**XS4P12KP340D**	**XS4P18KP340D**	**XS4P30KP340D**
	10–36				10–36		
	200				200		
	★ / ⊗				★ / –		
	≤ 2				≤ 2.6		
	5000	5000	2000	1000	5000	2000	1000

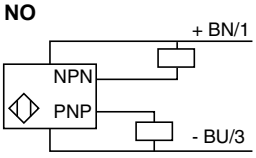
PNP



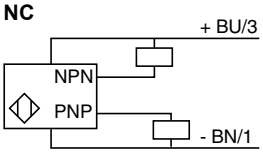
NPN



NO



NC



Accessories

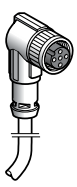
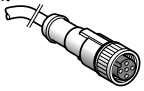
Mounting clamps

With indexing pin for cylindrical sensors.

M8	**XSZB108**
M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Adaptable female plug-in connectors, including PUR prewired versions *(1)*

5 m without LED	prewired, elbowed	prewired, straight	screw terminal
M8 (or S)	**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30S**
M12 (or D)	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**
1/2" (or K)	**XZCP1965L5**	**XZCP1865L5**	**XZCC20FCM30B**

(1) For other cable options, see page 55.

OsiSense XS

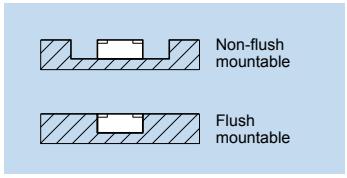
Inductive proximity sensors—Application specific

Rotation control

Fixed sensing distance

for ferrous or non-ferrous materials

For table footnotes, see page 35.



		26 x 26 x 13	40 x 40 x 15	M30	M18	M30
Nominal sensing distance Sn		**10** mm	**15** mm	**10** mm	**5** mm	**10** mm
Operating zone (mm)		0–8	0–12	0–8	0–4	0–8
Suitability for flush mounting (metal environment)		flush mountable			flush mountable	
Case: M (metal), P (plastic)		P	P	M	M	M
Temperature range		−13 to +158 °F (−25 to +70 °C)			+32 to +122 °F (0 to +50 °C)	
Degree of protection, conforming to IEC 60529		IP67			precabled: IP68 (with connector: IP67)	
Product certification		CE, UL, CSA, CCC, C-TICK			CE, UL, CSA, CCC, C-TICK	
Dimensions, Ø x L or W x H x D, mm (in.)	Cable/connector	26 x 26 x 13 (1.02 x 1.02 x 0.51)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	M30 x 81 (3.19)	M18 x 60 (2.36) / M18 x 70 (2.76)	M30 x 60 (2.36)
Maximum speed of passing object (impulses/min)		48000	48000	6000–48000 *(1)*	–	–
Adjustable frequency range (impulses/min)		6–6000	6–6000	6–150 / 120–3000 *(1)*	–	–

Sensors for DC applications

Connection			**Precabled, PvR (2 m)**				
4-wire	**PNP/NPN, NO/NC**	programmable	–	–	–	**XS1M18KPM40**	**XS1M30KPM40**
3-wire	**PNP, NC**	slow version	–	–	**XSAV11373**	–	–
		fast version	–	–	**XSAV12373**	–	–
	0–10 V output	plastic	–	–	–	–	–
	4–20 mA output	metal, flush mountable	–	–	–	–	–
		plastic, flush mountable	–	–	–	–	–
		plastic, non-flush mountable	–	–	–	–	–
Connection			**M8 or M12 connector**				**M12** on 0.8 m pigtail
4-wire	**PNP/NPN, NO/NC**	programmable	–	–	–	**XS1M18KPM40D**	**XS1M30KPM40LD**
3-wire	**PNP, NC**		**XS9E11RPBL01M12** *(3)*	**XS9C11RPBL01M12** *(3)*	–	–	–
	0–10 V output		–	–	–	–	–
	4–20 mA output		–	–	–	–	–
Supply voltage range (V), including ripple			10–36	10–36	10–58	10–38	
Switching capacity, max. (mA)			100	200	200	200	
Short-circuit protection (★) / Output state LED (⊗) / Power on LED (⊗)			(⊗)	★ / ⊗ / ⊗	★ / ⊗ / ⊗	★ / ⊗ / –	★ / ⊗/ –
Linearity error			–	–	–	–	
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2.6	
Switching frequency (Hz)			–	–	–	1000	
Operating frequency (Hz)			–	–	–	–	

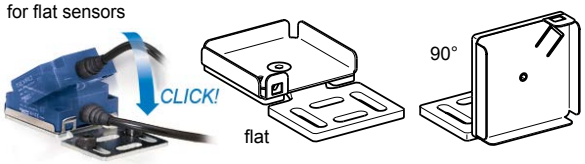
Multi-current/multi-voltage sensors for AC/DC applications

Connection			**Precabled, PvR (2 m)**				
2-wire	**AC/DC**	**NC**	**XS9E11RMBL01U20** *(5)*	**XS9C11RMBL01U20** *(5)*	–	–	–
not short-circuit protected *(2)*	**NC**	slow version	–	–	**XSAV11801**	–	–
		fast version	–	–	**XSAV12801**	–	–
Supply voltage range (V), 50-60 Hz			20–264	20–264	20–264	–	–
Switching capacity, max. (mA)			100	300 AC / 200 DC	300 AC / 200 DC	–	–
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗	⊗ / ⊗	⊗ / –	–	–
Residual current, open state (mA)			≤ 1.5	≤ 1.5	≤ 1.5	–	–
Voltage drop, closed state (V) at I nominal			≤ 5.5	≤ 5.5	≤ 5.7	–	–
Switching frequency (Hz)			–	–	–	–	–

Accessories

Mounting

for flat sensors



	flat	90°	substitution of block type sensors XSE / XSC / XSD
8x22x8	**XSZBJ00**	**XSZBJ90**	–
15x32x8	**XSZBF00**	**XSZBF90**	**XSZBE10**
26x26x13	**XSZBE00**	**XSZBE90**	**XSZBC10**
40x40x15	**XSZBC00**	**XSZBC90**	**XSZBD10**

Mounting clamp with indexing pin for cylindrical sensors.

M12	**XSZB112**
M18	**XSZB118**
M30	**XSZB130**

Analog / Factor 1

	26 x 26 x 13	40 x 40 x 15	80 x 80 x 26	M18	M30	Cubic, Analog	Cubic, Factor 1
	10 mm	**15** mm	**40** mm	M: **5** mm / P: **8** mm	M: **10** mm / P: **15** mm	15, 20, or 40 mm	**25** mm
	1–10	2–15	5–40	M: 0.5–5 / P: 0.8–8	M: 1–10 / P: 1.5–15		2–27
	flush mountable			flush / non-flush mountable			non-flush mountable
	P	P	P	M or P	M or P	P	P
	−13 to +158 °F (−25 to +70 °C)					Storage: −40 to +85 °C (−40 to +185 °F). Operation: −25 to +70 °C (−13 to +158 °F). *(7)*	
	precabled: IP68 (with connector: IP67)					IP65, IP67, IP69K	
	CE, UL, CSA, CCC, C-TICK					UL, CSA, CE, TÜV (4-wire versions, XS7)	
	26 x 26 x 13 (1.02 x 1.02 x 0.51)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	80 x 80 x 26 (3.15 x 3.15 x 1.02)	Ø18 x 50 (Ø0.71 x 1.97)	Ø30 x 52.5 (Ø1.18 x 2.07)	40 x 183.3 x 40 (1.57 x 7.22 x 1.57) 40 x 72.9 x 40 (1.57 x 2.87 x 1.57) (XS9 head)	
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
						Screw terminals	
	–	–	–	–	–		
	–	–	–	–	–		
	–	–	–	–	–		
	XS9E111A1L2	**XS9C111A1L2**	**XS9D111A1L2**	**XS4P18AB110**	**XS4P30AB110**		
	–	–	–	**XS1M18AB120**	**XS1M30AB120**		
	XS9E111A2L2	**XS9C111A2L2**	**XS9D111A2L2**	–	–		
	–	–	–	**XS4P18AB120**	**XS4P30AB120**		
						M12 connector	
	–	–	–	–	–	–	
	–	–	–	–	–	–	
	XS9E111A1L01M12 *(4)*	**XS9C111A1L01M12** *(4)*	**XS9D111A1M12**	–	–	–	
	XS9E111A2L01M12 *(4)*	**XS9C111A2L01M12** *(4)*	**XS9D111A2M12**	–	–	–	
	10–36	10–36	10–36	10–38	10–38	DC: 10–58 V AC/DC: 20–264 V	0–10 V: 15–36 V⎓ 4–20 mA: 12–36 V⎓
	–	–	–	–	–	*(8)*	–
	–	–	–	–	–		
	±1 V for 0–10 V version / ±2 mA for 4–20 mA version					–	< 3%
	–	–	–	–	–		–
	–	–	–	–	–	< 300 (flush), < 200 (non-flush)	–
	1000	1000	100	500	300	–	–

Accessories

PUR prewired connectors *(6)*

Straight Elbowed

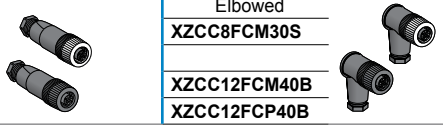
M8 (3 pin)	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**
5 m	**XZCP0566L5**	**XZCP0666L5**
10 m	**XZCP0566L10**	**XZCP0666L10**

1/2"	Straight	Elbowed
2 m	**XZCP1865L2**	**XZCP1965L2**
5 m	**XZCP1865L5**	**XZCP1965L5**
10 m	**XZCP1865L10**	**XZCP1965L10**

M12 (4 pin)	Straight	Elbowed	Elbowed PNP LED
2 m	**XZCP1141L2**	**XZCP1241L2**	**XZCP1340L2**
5 m	**XZCP1141L5**	**XZCP1241L5**	**XZCP1340L5**
10 m	**XZCP1141L10**	**XZCP1241L10**	**XZCP1340L10**

Adaptable female plug-in connectors

	Straight	Elbowed
M8		
Steel ring	**XZCC8FDM30S**	**XZCC8FCM30S**
M12 (4 pin)		
Steel ring	**XZCC12FDM40B**	**XZCC12FCM40B**
Plastic ring	**XZCC12FDP40B**	**XZCC12FCP40B**



(1) 6–150 and 6000 impulses/min for XSAV11373 and XSAV11801 (slow version); 120–3000 and 48000 impulses/min for XSAV12373 and XSAV12801 (fast version).
(2) For these sensors without short-circuit protection, it is essential to connect a 0.4 A quick-blow fuse in series with the load.
(3) Pigtail connector (0.15 m) with end mounted remote control incorporating M12 connector.
(4) Pigtail connector (0.15 m) with end connector.
(5) Pigtail connector (0.15 m) with end mounted remote control incorporating 1/2"-20 UNF connector.
(6) For other cable options, see page 55.
(7) Sensors are available for very low temperatures (suffix TF: −40 to +70 °C / −40 to +158 °F) or very high temperatures (suffix TT: −25 to +85 °C / −13 to +185 °F). Consult the Customer Care Center (1-800-435-2121).
(8) **4-wire ⎓:** < 200 (with overload and short-circuit protection)
2-wire ⎓: < 100 (with overload and short-circuit protection)
2-wire ∿/⎓: **AC** = 5–300.
DC = 5–200. Sensor must be protected by a 0.4 A fast-acting fuse (XUZE04) connected in series with the load. See “OsiSense XS Accessories” in catalog 9006CT1007.

Inductive proximity sensors—Application specific

Stainless steel housing for Food and Beverage

Type				M12	M18	Ø18 plain	M30
Nominal sensing distance Sn				**7** mm	**12** mm	**12** mm	**22** mm
Operating zone (mm)				0–5.6	0–9.6	0–9.6	0–17.6
Suitability for flush mounting (metal environment)				non-flush mountable			
Case: M (metal) *(1)*				M: stainless steel 316 L			
Product certification				CE, UL, CSA, CCC, C-TICK			
Temperature range				−13 to +185 °F (−25 to +85 °C)			
Degree of protection, conforming to IEC 60529				precabled: IP68 (with connector: IP67) and IP69K conforming to DIN 40050			

Sensors for DC applications (solid-state output: transistor)

Connection: Precabled, non-toxic PVC (2 m)			Dimensions, mm (in.)	M12 x 55 (2.17)	M18 x 60 (2.36)	Ø18 x 60 (2.36)	M30 x 62 (2.44)
3-wire	**PNP**	**NO**		**XS212SAPAL2**	**XS218SAPAL2**	**XS2L2SAPAL2**	**XS230SAPAL2**
	NPN	**NO**		**XS212SANAL2**	**XS218SANAL2**	**XS2L2SANAL2**	**XS230SANAL2**
Connection: M12 connector			Dimensions, mm (in.)	M12 x 61 (2.40)	M18 x 70 (2.76)	Ø18 x 70 (2.76)	M30 x 70 (2.76)
3-wire	**PNP**	**NO**		**XS212SAPAM12**	**XS218SAPAM12**	**XS2L2SAPAM12**	**XS230SAPAM12**
	NPN	**NO**		**XS212SANAM12**	**XS218SANAM12**	**XS2L2SANAM12**	**XS230SANAM12**
Supply voltage range (V), including ripple				10–36			
Switching capacity, max. (mA)				≤ 200			
Switching frequency (Hz)				2500	1000	1000	500
Short-circuit protection (★) / Output state LED (⊗)				★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal				≤ 2			

Multi-current/multi-voltage sensors for AC/DC applications

Connection: Precabled, non-toxic PVC (2 m)			Dimensions, mm (in.)	–	M18 x 60 (2.36)	–	M30 x 62 (2.44)
2-wire *(2)*	**AC/DC**	**NO**		–	**XS218SAMAL2**	–	**XS230SAMAL2**
			Dimensions, mm (in.)	–	M18 x 72 (2.84)	–	M30 x 74 (2.91)
2-wire *(2)*	**AC/DC**	**NO**		–	**XS218SAMAU20**	–	**XS230SAMAU20**
Supply voltage range (V), 50-60 HZ				–	20–264	–	20–264
Switching capacity, max. (mA)				–	300 AC / 200 DC	–	300 AC / 200 DC
Switching frequency (Hz)				–	25 AC / 1000 DC	–	25 AC / 300 DC
Output state LED (⊗)				–	⊗	–	⊗
Voltage drop, closed state (V) at I nominal				–	≤ 5.5	–	≤ 5.5
Residual current, open state (mA)				–	≤ 0.8	–	≤ 0.8

(1) Plastic range available. M12, M18, M30: To order, replace the second letter **S** in the catalog number with **A**. Example: XS212**S**APAL2 becomes XS212**A**APAL2.

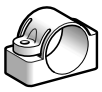
(2) For these sensors without short-circuit protection, you must connect a 0.4 A quick-blow fuse in series with the load.

Accessories

Mounting clamps

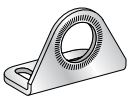
Plastic

24.1 mm mounting centers, with locking screw



for sensor	
Ø18 plain	**XUZB2005**

Stainless steel



for sensor	
Ø12	**XSZBS12**
Ø18	**XUZA118**
Ø30	**XSZBS30**

M12 prewired connector

female, 4-pin, stainless steel clamping ring

Straight connector

5 m cable **XZCPA1141L5**

Elbowed connector

5 m cable **XZCPA1241L5**

M12 jumper cable

male, 3-pin, stainless steel clamping ring

Straight connector 5 m cable **XZCRA151140A5**

1/2" prewired connector

Straight	5 m cable	**XZCP1865L5**
Elbowed	5 m cable	**XZCP1965L5**

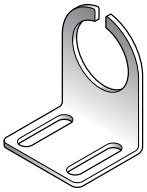
Stainless steel housing for Food and Beverage

ECOLAB

Three-wire 12–24 Vdc, NO function, PNP output, M12 connector		M12 Ø12 mm x 1, threaded	M18 Ø18 mm x 1, threaded	M30 Ø30 mm x 1.5, threaded
Sensing distance (Sn), mm	flush mountable	6	10	20
	non-flush mountable	10	20	40
Operating zone	flush mountable	0–4.8 mm	0–8 mm	0–16 mm
	non-flush mountable	0–8 mm	0–16 mm	0–32 mm
Suitability for flush mounting (metal environment)		Flush mountable or non–flush mountable, depending on the model		
Case		Stainless steel 316L		
Temperature range		−13 to +185 °F (−25 to +85 °C)		
Degree of protection, confroming to IEC 60529		IP68 conforming to IEC 60529, IP 69 conforming to DIN 40050		
Product certification		CULus, CE	CULus, CE	CULus, CE
Dimensions , mm (in.)	connector	M12 x 60 mm (2.32 in.)	M18 x 64 mm (2.52 in.)	M30 x 64 mm (2.52 in.)

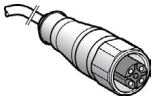
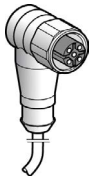
Sensors for DC applications

Catalog number	flush mountable	**XS912S1PAM12**	**XS918S1PAM12**	**XS930S1PAM12**
3-wire, PNP, NO	non-flush mountable	**XS912S4PAM12**	**XS918S4PAM12**	**XS930S4PAM12**
Weight, kg (lb)	flush mountable	0.024 (0.053)	0.051 (0.112)	0.140 (0.309)
	non-flush mountable	0.023 (0.051)	0.051 (0.112)	0.145 (0.320)
Supply voltage range (V), including ripple		10–30	10–30	10–30
Switching capacity, max (mA)		200	200	200
Short-circuit protection (★) / Output state LED (⊗)		★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal		≤ 2	≤ 2	≤ 2
Switching frequency (Hz)		600	300	100



Accessories	**For use with**		
Stainless steel mounting bracket	**Ø12 sensor**	**Ø18 sensor**	**Ø30 sensor**
Catalog number	**XSZBS12**	**XUZA118**	**XSZBS30**
Weight, kg (lb)	0.090 (0.199)	0.190 (0.419)	0.370 (0.816)

Connecting cables

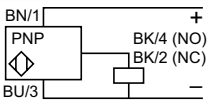



Pre-wired M12 connectors, female, 4-pin, stainless steel clamping ring		**2 m**	**5 m**	**10 m**
Catalog number	Straight	**XZCPA1141L2**	**XZCPA1141L5**	**XZCPA1141L10**
	Elbowed	**XZCPA1241L2**	**XZCPA1241L5**	**XZCPA1241L10**
Weight, kg (lb)		0.090 (0.198)	0.190 (0.419)	0.370 (0.816)

Wiring diagrams

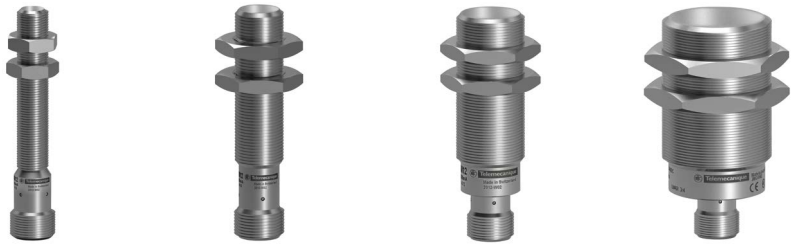
M12 connector

PNP



Inductive proximity sensors—Application specific

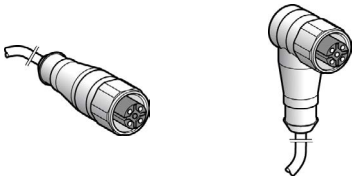
Stainless steel housing for Machining and Welding



Three-wire 12–24 Vdc, NO Function, PNP Output, M12 Connection			M8	M12	M18	M30
Ø8 mm, threaded M8 x 1						
Sensing distance (Sn), mm	flush mountable		3	6	10	20
	non-flush mountable		6	10	20	40
Operating zone	flush mountable		0–2.4 mm	0–4.8 mm	0–8 mm	0–16 mm
	non-flush mountable		0–4.8 mm	0–8 mm	0–16 mm	0–32 mm
Weight, kg (lb)	flush mountable	industrial	0.018 (0.040)	0.024 (0.053)	0.044 (0.097)	0.140 (0.309)
		welding	–	0.024 (0.053)	0.051 (0.112)	–
	non-flush mountable		0.018 (0.040)	0.023 (0.051)	0.051 (0.112)	0.144 (0.317)
Suitability for flush mounting (metal environment)			flush mountable or non-flush mountable, depending on the model			
Case			Stainless steel 303			
Temperature range			−13 to +158 °F (−25 to +70 °C)			
Degree of protection, confroming to iec 60529			IP67 conforming to IEC 60529, IP 69 conforming to DIN 40050			
Product certification			CULus, CE	CULus, CE	CULus, CE	CULus, CE
Dimensions, mm (in.)		connector	M8 x 66 mm (2.60 in.)	M12 x 60 mm (2.32 in.)	M18 x 64 mm (2.52 in.)	M30 x 64 mm (2.52 in.)

Sensors for DC applications

Catalog number 3-wire, PNP, NO	flush mountable	industrial	**XS908R1PAM12**	**XS912R1PAM12**	**XS918R1PAM12**	**XS930R1PAM12**
		welding	–	**XS912RWPAM12**	**XS918RWPAM12**	–
	non-flush mountable		**XS908R4PAM12**	**XS912R4PAM12**	**XS918R4PAM12**	**XS930R4PAM12**
Supply voltage range (V), including ripple			10-30	10-30	10-30	10-30
Switching capacity, max (mA)			200	200	200	200
Short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗
Voltage drop, closed state (V) at I nominal			≤ 2	≤ 2	≤ 2	≤ 2
Switching frequency (Hz)	flush mountable	industrial	1000	600	300	100
		welding	–	15	15	–
	non-flush mountable		700	400	200	90



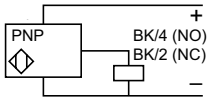
Connecting cables

Description			2 m	5 m	10 m
Pre-wired M12 connectors, female, 4-pin, metal clamping ring	**Catalog Number**	Straight	**XZCP1141L2**	**XZCP1141L5**	**XZCP1141L10**
		Elbowed	**XZCP1241L2**	**XZCP1241L5**	**XZCP1241L10**
	Weight		0.090 (0.198)	0.190 (0.419)	0.370 (0.816)

Wiring diagrams

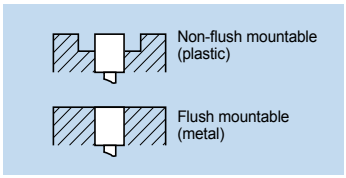
M12 connector

PNP



OsiSense XT

Capacitive proximity sensors
Detection of insulating materials or conductive materials



Suitability for flush mounting		M12	M18	M30	Ø32	40 x 40 x 117
Nominal sensing distance Sn	flush mountable	2 mm	5 mm	10 mm	15 mm	15 mm
	non-flush mountable	–	8 mm	15 mm	20 mm	–
Operating zone Sa (mm) *(2)*	flush mountable	0–1.44	0–3.6	0–7.2	0–10	0–11
	non-flush mountable	–	0–5.8	0–11	0–15	–
Case: M (metal), P (plastic)	flush mountable	M	M	M	M	P
	non-flush mountable	–	P	P	P	–
Product certification		CE, c ETL us (All XT1); CE, UL (All XT2)				CE, UL, CSA
Temperature range		−13 to +158 °F (−25 to +70 °C)				
Degree of protection, conforming to IEC 60529		IP67				
Dimensions, Ø x L or H x W x D, mm (in.)		M12 x 70 (2.76)	M18 x 80 (3.15)	M30 x 80 (3.15)	M32 x 80 (3.15)	117 x 40 x 40 (4.61 x 1.58 x 1.58)

Sensors for DC applications

Connection				**Precabled, PVC (2 m)**				
3-wire	**PNP**	**NO**	flush mountable	**XT112S1PAL2**	**XT118B1PAL2**	**XT130B1PAL2**	–	–
			non-flush mountable	–	**XT218A1PAL2**	**XT230A1PAL2**	–	–
		NO + NC	flush mountable	**XT112S1PCL2**	**XT118B1PCL2**	**XT130B1PCL2**	–	–
			non-flush mountable	–	–	–	–	–
	NPN	**NO**	flush mountable	**XT112S1NAL2**	**XT118B1NAL2**	**XT130B1NAL2**	–	–
			non-flush mountable	–	**XT218A1NAL2**	**XT230A1NAL2**	–	–
Connection				**M12 connector**				**Screw terminals**
3-wire	**PNP**	**NO + NC**	flush mountable	**XT112S1PCM12**	**XT118B1PCM12**	**XT130B1PCM12**	–	**XT7C40PC440H7**
			non-flush mountable	–	**XT218A1PCM12**	**XT230A1PCM12**	–	–
	NPN	**NO + NC**	flush mountable	–	–	–	–	**XT7C40NC440H7**
Supply voltage range (V), including ripple				10–38				10–58
Switching capacity, max. (mA)				200				200
Short circuit-protection (★) / Output state LED (⊗)				★ / ⊗				★ / ⊗
Voltage drop, closed state (V) at I nominal				≤ 2				≤ 2
Switching frequency (Hz)				300	100 (XT2) / 200 (XT1)	100 (XT2) / 150 (XT1)	–	100

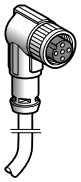
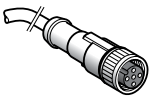
Multi-current/multi-voltage sensors for AC applications

Connection				**Precabled, PVC (2 m)**				
2-wire AC *(1)*		**NO**	flush mountable	–	**XT118B1FAL2**	**XT130B1FAL2**	**XT132B1FAL2**	–
			non-flush mountable	–	**XT218A1FAL2**	**XT230A1FAL2**	**XT232A1FAL2**	–
		NC	flush mountable	–	**XT118B1FBL2**	**XT130B1FBL2**	**XT132B1FBL2**	–
			non-flush mountable	–	–	**XT230A1FBL2**	**XT232A1FBL2**	–
Connection				**Screw terminals**				
2-wire AC *(1)*		**NO or NC** programmable	flush mountable	–	–	–	–	**XT7C40FP262H7**
Supply voltage range (V), 50-60 Hz				–	–	–	–	20–264
Switching capacity, max. (mA)				–	–			350 (2 A inrush) *(1)*
Output state LED (⊗) / Power on LED (⊗)				⊗ / –				
Voltage drop, closed state (V) at I nominal				–	–	–	–	≤ 5.5
Switching frequency (Hz)				–	–	–	–	25

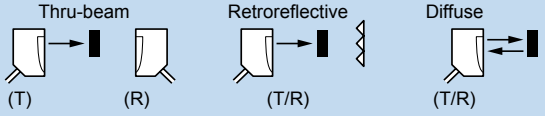
(1) For these sensors without short-circuit protection, you must connect a 0.4 A quick-blow fuse in series with the load.
(2) The operating distance depends on the object material.
(3) For other cable options, see page 55.

Accessories

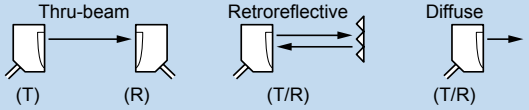
Adaptable female plug-in connectors, including PUR prewired versions *(3)*

5 m without LED	prewired, elbowed	prewired, straight	screw terminal
			
M12	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**

NO function: Object present / Output On



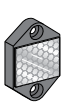
NC function: No object present / Output On



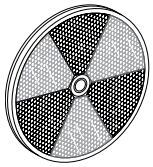
			M18 Metal *(1)* Cable	M12 connector	M18 Plastic Cable	M12 connector
Diffuse	**Sensing distance**		**0.6 m** *(2) (3)*		**0.6 m** *(2) (3)*	
Output type	DC3 NO	PNP	**XUB5BPANL2**	**XUB5BPANM12**	**XUB5APANL2**	**XUB5APANM12**
		NPN	**XUB5BNANL2**	**XUB5BNANM12**	**XUB5ANANL2**	**XUB5ANANM12**
	AC/DC, 1 C/O relay		–	–	–	–
With background suppression	NO	PNP	**XU8M18MA230**	**XU8MA230K**	–	–
		NPN	–	–	–	–
	AC/DC relay output		–	–	–	–
Polarized retroreflective	**Sensing distance** *(4)*		**2 m**		**2 m**	
Output type	DC3 NO	PNP	**XUB9BPANL2**	**XUB9BPANM12**	**XUB9APANL2**	**XUB9APANM12**
		NPN	**XUB9BNANL2**	**XUB9BNANM12**	**XUB9ANANL2**	**XUB9ANANM12**
	AC/DC 1C/O relay		–	–	–	–
Retroreflective	**Sensing distance** *(4)*		**4 m**		**4 m**	
Output type	DC3 NO	PNP	**XUB1BPANL2**	**XUB1BPANM12**	**XUB1APANL2**	**XUB1APANM12**
		NPN	**XUB1BNANL2**	**XUB1BNANM12**	**XUB1ANANL2**	**XUB1ANANM12**
	AC/DC 1C/O relay		–	–	–	–
Thru-beam	**Sensing distance**		**15 m**		**15 m**	
Output type	DC3 NO	PNP	**XUB2BPANL2R**	**XUB2BPANM12R**	**XUB2APANL2R**	**XUB2APANM12R**
		NPN	**XUB2BNANL2R**	**XUB2BNANM12R**	**XUB2ANANL2R**	**XUB2ANANM12R**
	AC/DC 1C/O relay		–	–	–	–
Output function	**NO**		**A**	**A**	**A**	**A**
	NC		**B**	**B**	**B**	**B**
Thru-beam transmitter		DC	**XUB2BKSNL2T**	**XUB2BKSNM12T**	**XUB2AKSNL2T**	**XUB2AKSNM12T**
		AC/DC	–	–	–	–
Multimode	**Sensing distance**		Background suppression: **0.12 m**. Diffuse: **0.4 m**.			
			Polarized retroreflective: **3 m**. Thru-beam: **20 m**.			
Output type	DC3 NO/NC	PNP	**XUB0BPSNL2**	**XUB0BPSNM12**	**XUB0APSNL2**	**XUB0APSNM12**
		NPN	**XUB0BNSNL2**	**XUB0BNSNM12**	**XUB0ANSNL2**	**XUB0ANSNM12**
		PNP/NPN	–	–	–	–
	AC/DC 1C/O relay		–	–	–	–
Thru-beam transmitter		DC	**XUB0BKSNL2T**	**XUB0BKSNM12T**	**XUB0AKSNL2T**	**XUB0AKSNM12T**
		AC/DC	–	–	–	–
Mounting			M18 x 1		M18 x 1	
Dimensions, mm (in.)			M18 x 64 (2.52) / M18 x 78 (3.07)			
Product certifications			CE, UL, CSA, C-Tick		CE, UL, CSA, C-Tick	
DC common specifications						
Supply voltage range (V), including ripple			10–36		10–36	
Switching frequency (Hz)			500		500	
Common specifications for DC versions			Switching capacity max.: 100 mA / Overload and short-circuit protection (★) / Output state LED			
AC/DC common specifications						
Supply voltage range (V), including ripple			–		–	
Switching frequency (Hz)			–		–	
Output state LED (⊗) / power on LED (⊗)			–		–	

Accessories

Reflectors



XUZC24



XUZC80

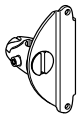
XUZC50

Reflectors (mm)	
Ø21	**XUZC21**
24 x 21	**XUZC24**
11 x 33	**XUZC08**
Ø39	**XUZC39**
Ø80	**XUZC80**
50 x 50	**XUZC50**
100 x 100	**XUZC100**

3D mountings with ball joint

Bracket with ball joint for sensors and reflector XUZC50

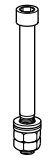
for	
XUB●●●	**XUZB2003**
XUM0●●●	**XUZM2003**
XUK●●●	**XUZK2003**
XUX●●●	**XUZX2003**



Protective housing with ball joint

for	
XUK●●●	**XUZK2004**
XUX ●●●	**XUZX2004**

M12 rod for ball joint



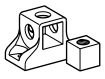
XUZ2001

(1) Brass. Also available in stainless steel. See page 47 for the food/beverage processing series.
(2) For a sensing distance 0.1 m without sensitivity adjustment, replace digit **5** with **4** in the catalog number. Example: XUB**5**BPANL2 becomes XUB**4**BPANL2.
(3) With sensitivity adjustment. *(4)* With reflector XUZC50, ordered separately. *(5)* For other cable options, see page 55.

Miniature		Compact 50 x 50 mm		Compact 92 x 71 mm	
Cable	M8 connector	Cable	M12 connector	Screw terminal	M12 connector
1 m *(3)*		**1 m** *(3)*		**2.1 m** *(3)*	
XUM5APCNL2	**XUM5APCNM8**	**XUK5APANL2**	**XUK5APANM12**	**XUX5APANT16**	**XUX5APANM12**
XUM5ANCNL2	**XUM5ANCNM8**	**XUK5ANANL2**	**XUK5ANANM12**	**XUX5ANANT16**	**XUX5ANANM12**
–	–	**XUK5ARCNL2**	–	**XUX5ARCNT16**	–
XUM5APCNL2	**XUM5APCNM8**	**XUK8AKSNL2**	**XUK8AKSNM12**	**XUX8AKSAT16**	**XUX8AKSAM12**
XUM5ANCNL2	**XUM5ANCNM8**				
–	–	**XUK8ARCTL2**	–	**XUX8ARCTT16**	–
5 m *(3)*		**5 m**		**11 m** *(3)*	
XUM9APCNL2	**XUM9APCNM8**	**XUK9APANL2**	**XUK9APANM12**	**XUX9APANT16**	**XUX9APANM12**
XUM9ANCNL2	**XUM9ANCNM8**	**XUK9ANANL2**	**XUK9ANANM12**	**XUX9ANANT16**	**XUX9ANANM12**
–	–	**XUK9ARCNL2**	–	**XUX9ARCNT16**	–
–		**7 m**		**14 m** *(3)*	
–	–	**XUK1APANL2**	**XUK1APANM12**	**XUX1APANT16**	**XUX1APANM12**
–	–	**XUK1ANANL2**	**XUK1ANANM12**	**XUX1ANANT16**	**XUX1ANANM12**
–	–	**XUK1ARCNL2**	–	**XUX1ARCNT16**	–
15 m *(3)*		**30 m**		**40 m** *(3)*	
XUM2APCNL2R	**XUM2APCNM8R**	**XUK2APANL2R**	**XUK2APANM12R**	**XUX2APANT16R**	**XUX2APANM12R**
XUM2ANCNL2R	**XUM2ANCNM8R**	**XUK2ANANL2R**	**XUK2ANANM12R**	**XUX2ANANT16R**	**XUX2ANANM12R**
–	–	**XUK2ARCNL2R**	–	**XUX2ARCNT16R**	–
NO or NC	**NO or NC**	**A**	**A**	**A**	**A**
		B	**B**	**B**	**B**
XUM2AKCNL2T	**XUM2AKCNM8T**	**XUK2AKSNL2T**	**XUK2AKSNM12T**	**XUX0AKSAT16T**	**XUX0AKSAM12T**
–	–	**XUK2ARCNL2T**	–	**XUX0ARCTT16T**	–
Background suppression: **0.1 m**. Diffuse: **0.4 m**.		Background suppression: **0.28 m**. Diffuse: **0.8 m**.		Background suppression: **1.3 m**. Diffuse: **2 m**.	
Polarized retroreflective: **3 m**. Thru-beam: **10 m**.		Polarized retroreflective: **4 m**. Thru-beam: **30 m**.		Polarized retroreflective: **11 m**. Thru-beam: **40 m**.	
XUM0APSAL2	**XUM0APSAM8**	–	–	–	–
XUM0ANSAL2	**XUM0ANSAM8**	–	–	–	–
–	–	**XUK0AKSAL2**	**XUK0AKSAM12**	**XUX0AKSAT16**	**XUX0AKSAM12**
–	–	**XUK0ARCTL2**	–	**XUX0ARCTT16**	–
XUM0AKSAL2T	**XUM0AKSAM8T**	**XUK0AKSAL2T**	**XUK0AKSAM12T**	**XUX0AKSAT16T**	**XUX0AKSAM12T**
–	–	**XUK0ARCTL2T**	–	**XUX0ARCTT16T**	–
Direct mounting centers 25.5, M3 screws		Direct mounting centers 40 x 40, M4 screws		Direct mounting centers 30/38 to 40/50/74, M5 screws	
12 x 34 x 20 (0.47 x 1.34 x 0.79)		18 x 50 x 50 (0.71 x 1.97 x 1.97)		30 x 92 x 71 (1.18 x 3.62 x 2.80)	
CE, UL, CSA, C-Tick		CE, UL, CSA, CCC, C-Tick		CE, UL, CSA, CCC, C-Tick	
10–30		10–30		10–36	
1000		500		500	
indicator (⊗): yes / power on LED (⊗): yes					
–		20–264		20–264	
–		20		20	
–		⊗ / ⊗		⊗ / ⊗	

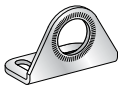
Simple mounting devices

Mounting support for M12 rod



XUZ2003

Single bracket

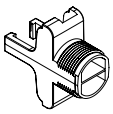


for	standard
XUB●●●	**XUZA118** (stainless steel)
XUM●●●	**XUZAM02**
XUK●●●	**XUZA51**
XUX●●●	**XUZX2000**

Conduit adapter (ISO 16 to 1/2" NPT)

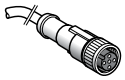
XUZX2001

Plastic Ø18 mounting adapter (XUM2, XUM5, and XUM9)



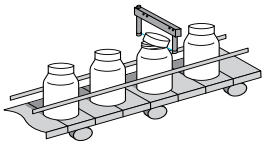
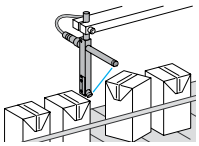
XUZASM001

Adaptable female plug-in connectors, including PUR prewired versions *(5)*



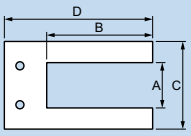
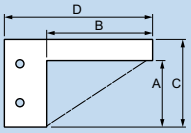
5 m without LED	prewired, elbowed	prewired, straight
M8	**XZCP1041L5**	**XZCP0941L5**
M12	**XZCP1241L5**	**XZCP1141L5**

Photoelectric sensors
Optical forks without setting and frames

System	Thru-beam with modular red LED light source
Sensing distance	**30–150** mm
Minimum size of object detected, mm (in.)	0.8 (0.03)
Case: M (metal)	M
Temperature range / Degree of protection, conforming to IEC 60529	+14 to +140 °F (−10 to +60 °C) / IP65 & IP67
Product certification	CE, cULus

Sensors for DC applications (solid-state output: transistor)

Connection				**M8 connector** 3-pin					**Precabled:** 2 m.				
Dimensions, mm (in.)					A	B	C	D		A	B	C	D
Transmitter / Receiver	3 wire	NO	PNP	**XUVR0605P ANM8**	50 (1.97)	60 (2.36)	74 (2.91)	77.5 (3.05)	**XUVR0303PANL2**	30 (1.18)	40 (1.58)	54 (2.13)	57.5 (2.26)
			NPN	**XUVR0605N ANM8**									
		NO	PNP	**XUVR0608P ANM8**	80 (3.15)	60 (2.36)	104 (4.09)	77.5 (3.05)					
			NPN	**XUVR0608N ANM8**									
		NO	PNP	**XUVR1212P ANM8**	120 (4.72)	120 (4.72)	144 (5.67)	142 (5.59)					
			NPN	**XUVR1212N ANM8**									
		NO	PNP	**XUVR1218P ANM8**	180 (7.09)	120 (4.72)	204 (8.03)	142 (5.59)					
			NPN	**XUVR1218N ANM8**									
		NO	PNP	**XUVA0505P ANM8**	44 (1.73)	44 (1.73)	71 (2.80)	71 (2.80)					
		NO	PNP	**XUVA0808P ANM8**	74 (2.91)	74 (2.91)	101 (3.98)	101 (3.98)					
		NO	PNP	**XUVA1212P ANM8**	112 (4.41)	112 (4.41)	142 (5.59)	142 (5.59)					
		NO	PNP	**XUVA1515P ANM8**	142 (5.59)	142 (5.59)	172 (6.77)	172 (6.77)					
Output function	**NO**			**A**									
	NC			**B**									
Supply voltage range (V), including ripple				10–30									
Switching capacity, max. (mA) / Switching frequency (Hz)				100 mA / 4 kHz									
Overload and short-circuit protection (★) / Output state LED (⊗)				★ / ⊗									

System		Thru-beam with infrared emission				
Passageway dimensions, mm (in.)		30 x 30 (1.18 x 1.18)	60 x 60 (2.36 x 2.36)	200 x 120 (7.87 x 4.72)	200 x 180 (7.87 x 7.09)	200 x 250 (7.87 x 9.84)
Connection		M8 (4 pin)		M12 (4 pin)		
Minimum size of object to be detected	Ø2 mm	**XUVF30M8**	**XUVF60M8**	–	–	–
	Ø4 mm	–	–	**XUVF120M12**	**XUVF180M12**	**XUVF250M12**
	Ø10 mm	–	–	**XUYFRS120S**	**XUYFRS180S**	**XUYFRS250S**
Type and output function		4-wire, PNP and NPN Output function On or Off on passage of object, programmable				
Function type		Dynamic (XUVF30M8, XUVF60M8), Dynamic or static (XUVF120M12, XUVF180M12, XUVF250M12)				
Supply voltage range (V), including ripple		18–30				
Switching capacity, max. (mA) / Switching frequency (Hz)		≤ 100 mA / 500 Hz				
Overload and short-circuit protection (★) / Output state LED (⊗)		★ / ⊗				

Accessories

Adaptable female PUR prewired plug-in connectors *(1)*

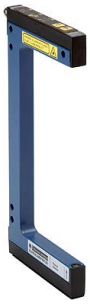
Straight

Elbowed

	M8 (3 pin) For optical forks without setting		**M8** (4 pin) For optical forks and frame with setting		**M12** (4 pin) For frame with setting	
	Straight	Elbowed	Straight	Elbowed	Straight	Elbowed
2 m	**XZCP0566L2**	**XZCP0666L2**	**XZCP0941L2**	**XZCP1041L2**	**XZCP1141L2**	**XZCP1241L2**
5 m	**XZCP0566L5**	**XZCP0666L5**	**XZCP0941L5**	**XZCP1041L5**	**XZCP1141L5**	**XZCP1241L5**

(1) For other cable options, see page 55.

Forks with teach mode *(1)*



System, with teach mode	Thru-beam	Thru-beam laser
Sensing distance	**2–120** mm	**2–120** mm
Mounting, mm (in.)	(see column E below)	
Minimum size of object detected, mm (in.)	0.2 (0.008)	0.05 (0.002)
Case: M (metal) / Setup assistance LEDs ⊗	M / ⊗	
Temperature range / Degree of protection (conforming to IEC 60529)	−13 to +140 °F (−25 to +60 °C) / IP65	
Product certification	CE, cULus	

Sensors for DC applications (solid-state output: transistor)

Connection	**M8 connector** – 4 Pin											
Type of output	3-wire PNP/NPN programmable NO/NC											
Dimensions, mm (in.)		**A**	**B**	**C**	**D**	**E**		**A**	**B**	**C**	**D**	**E**
Transmitter / Receiver	**XUYFANEP40002**	2 (0.1)	42 (1.7)	32 (1.3)	57 (2.2)	14 (0.6)	**XUYFALNEP40002**	2 (0.1)	42 (1.7)	41 (1.6)	57 (2.2)	14 (0.6)
	XUYFANEP60002	2 (0.1)	59 (2.3)		77 (3.0)		**XUYFALNEP60002**	2 (0.1)	59 (2.3)		77 (3.0)	
	XUYFANEP100002	2 (0.1)	95 (3.7)		110 (4.3)		**XUYFALNEP100002**	2 (0.1)	95 (3.7)		110 (4.3)	
	XUYFANEP40005	5 (0.2)	42 (1.7)	35 (1.4)	57 (2.2)	14 (0.6)	**XUYFALNEP40005**	5 (0.2)	42 (1.7)	44 (1.7)	57 (2.2)	14 (0.6)
	XUYFANEP60005	5 (0.2)	59 (2.3)		77 (3.0)		**XUYFALNEP60005**	5 (0.2)	59 (2.3)		77 (3.0)	
	XUYFANEP100005	5 (0.2)	95 (3.7)		110 (4.3)		**XUYFALNEP100005**	5 (0.2)	95 (3.7)		110 (4.3)	
	XUYFANEP40015	15 (0.6)	42 (1.7)	45 (1.8)	57 (2.2)	27 (1.1)	**XUYFALNEP40015**	15 (0.6)	42 (1.7)	54 (2.1)	57 (2.2)	27 (1.1)
	XUYFANEP60015	15 (0.6)	59 (2.3)		77 (3.0)		**XUYFALNEP60015**	15 (0.6)	59 (2.3)		77 (3.0)	
	XUYFANEP100015	15 (0.6)	95 (3.7)		110 (4.3)		**XUYFALNEP100015**	15 (0.6)	95 (3.7)		110 (4.3)	
	XUYFANEP40030	30 (1.2)	42 (1.7)	60 (2.4)	57 (2.2)	42 (1.7)	**XUYFALNEP40030**	30 (1.2)	42 (1.7)	69 (2.7)	57 (2.2)	42 (1.7)
	XUYFANEP60030	30 (1.2)	59 (2.3)		77 (3.0)		**XUYFALNEP60030**	30 (1.2)	59 (2.3)		77 (3.0)	
	XUYFANEP100030	30 (1.2)	95 (3.7)		110 (4.3)		**XUYFALNEP100030**	30 (1.2)	95 (3.7)		110 (4.3)	
	XUYFANEP40050	50 (2.0)	42 (1.7)	80 (3.1)	57 (2.2)	40 (1.6)	**XUYFALNEP40050**	50 (2.0)	42 (1.7)	89 (3.5)	57 (2.2)	40 (1.6)
	XUYFANEP60050	50 (2.0)	59 (2.3)		77 (3.0)		**XUYFALNEP60050**	50 (2.0)	59 (2.3)		77 (3.0)	
	XUYFANEP100050	50 (2.0)	95 (3.7)		110 (4.3)		**XUYFALNEP100050**	50 (2.0)	95 (3.7)		110 (4.3)	
	XUYFANEP40080	80 (3.1)	42 (1.7)	110 (4.3)	57 (2.2)	70 (2.8)	**XUYFALNEP40080**	80 (3.1)	42 (1.7)	119 (4.7)	57 (2.2)	70 (2.8)
	XUYFANEP60080	80 (3.1)	59 (2.3)		77 (3.0)		**XUYFALNEP60080**	80 (3.1)	59 (2.3)		77 (3.0)	
	XUYFANEP100080	80 (3.1)	95 (3.7)		110 (4.3)		**XUYFALNEP100080**	80 (3.1)	95 (3.7)		110 (4.3)	
	XUYFANEP40120	120 (4.7)	42 (1.7)	150 (5.9)	57 (2.2)	110 (4.3)	**XUYFALNEP40120**	120 (4.7)	42 (1.7)	159 (6.3)	57 (2.2)	110 (4.3)
	XUYFANEP60120	120 (4.7)	59 (2.3)		77 (3.0)		**XUYFALNEP60120**	120 (4.7)	59 (2.3)		77 (3.0)	
	XUYFANEP100120	120 (4.7)	95 (3.7)		110 (4.3)		**XUYFALNEP100120**	120 (4.7)	95 (3.7)		110 (4.3)	
Supply voltage range (V), including ripple	10–30						10–30					
Switching capacity, max. (mA) / Switching frequency (Hz)	100/10 kHz						100/10 kHz					
Overload and short-circuit protection (★) / Output state LED (⊗)	★ / ⊗						★ / ⊗					

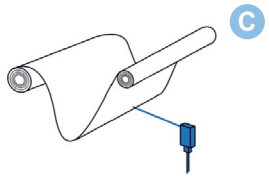
System		Ultrasonic thru-beam Special transparent labels	Thru-beam For all other opaque labels
Sensing distance	3 mm version	**XUVU06M3●SNM8** *(2)*	**XUVE04M3●SNM8** *(2)*
Switching frequency (Hz)		1500	10,000
Sensitivity adjustment		numeric potentiometer *(3)*	numeric potentiometer *(3)*
Connection		M8 (4 pin)	
Temperature range / Degree of protection, conforming to IEC 60529		+41 to +131 °F (+5 to +55 °C) / IP65	−4 to +140 °F (−20 to +60 °C) / IP65
Product certification		CE	CE, cULus

(1) To order a fork without teach mode, delete **A** from the catalog number. Example: XUYF**A**NEP40002 becomes XUYFNEP40002.
(2) Replace ● with **P** for PNP, **N** for NPN, or **K** for PNP/NPN for output type.
(3) Remote adjustment available for P (PNP) or N (NPN) versions.

Photoelectric sensors—Application specific

Material handling series—Conveying

Analog output



Analog output
Position control

High excess gain for resistance to accumulation of dirt

Application	Anti-collision/Tandem mode				
System	**Diffuse distance**	**Diffuse w/ background suppression**	**Reflective time-of-flight**	**Diffuse**	**Thru-beam**
Sensing distance	**0.20–0.80** m	**0.20–30** m *(1)*	**0.20–6** m *(2)*	**0.05–0.40** m	**50** m
Mounting, mm *(MC = mounting centers)*	MC: 30–11P cable connector	3 holes, 5.8 mm		M18 x 1	M18 x 1
Sensitivity adjustment	–	Teach mode		Potentiometer	Potentiometer
Case: M (metal), P (plastic) / Setup assistance LEDs ⊗	P / ⊗	P / ⊗		M / ⊗	M / ⊗
Temperature range / Degree of protection, conforming to IEC 60529	−25 to +140 °F (−25 to +60 °C) / IP67	−4 to +122 °F (−20 to +50 °C) / IP67		−13 to +131 °F (−25 to +55 °C) / IP67	
Product certification	CE, UL, CSA	CE, cULus		CE, UL, CSA	CE, UL, CSA, C-TICK
Dimensions, Ø x L or H x W x D, mm (in.)	86 x 27 x 83 (3.39 x 1.06 x 3.27)	93 x 42 x 95 (3.66 x 1.65 x 3.74)		M18 x 95 (3.74)	

Sensors for DC applications

Connection			**Screw terminals**	**M12 connector** – 5 pins		**M12 connector**	**M12 connector**
Transmitter / Receiver	analog 4–20 mA / 0–10 V	1 PNP/NPN	**XUK8TAE1MM12**	**XUK8TAKSMM12**	–	–	–
		2 PNP/NPN	–	**XUK8TAKDMM12**	–	–	–
	analog 4–20 mA		–	–	–	**XU5M18AB20D**	–
	analog 4–20 mA + 1 PNP		**XUK8TAE2MM12** *(3)*	–	–	–	**XU2M18AP20D** *(2)*
	analog 4–20 mA + 2 PNP/NPN, NO/NC *(5)*		–	–	**XUK9TAH2MM12**	–	–
Supply voltage range (V), including ripple			20–30	18–30		10–30	10–30
Switching capacity, max. (mA) / Switching frequency (Hz)			max: 20, min: 4 / 10000	100 / 38 (fast mode), 16 (slow mode)		max: 20, min: 4 / 20	100 / 30
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗		★ / ⊗	★ / ⊗

Laser class II

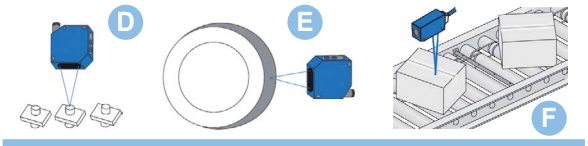
Laser class II

Application				
System	**Retroreflective polarized**	**Thru-beam**	**Background suppression**	**Diffuse**
Sensing distance	**12** m *(5)*	**25** m	**0.8** m	**1.2** m
Mounting (mm)	2 x Ø4.3 holes / mounting centers 30			
Sensitivity adjustment	Teach mode	Teach mode	Potentiometer	Teach mode
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗			
Temperature range / Degree of protection, conforming to IEC 60529	−4 to +140 °F (−20 to +60 °C) / IP67 and IP69K			
Product certification	CE, Ecolab			
Dimensions, H x W x D, mm (in.)	50 x 50 x 23 (1.97 x 1.97 x 0.91)			

Sensors for DC applications (solid-state output: transistor)

Connection			**M12 connector** – 4 pin			
	PNP	**NO**	–	–	–	–
	NPN	**NO**	–	–	–	–
	PNP	programmable **NO / NC**	**XUK9LAPSMM12** *(4)*	**XUK2LAPSMM12R** *(4)*	**XUK8LAPPNM12** *(4)*	**XUK5LAPSMM12** *(4)*
Transmitter			–	**XUK2LAKSMM12T** *(4)*	–	–
Supply voltage range (V), including ripple			12–30			
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / ≤ 2000	100 / ≤ 3500	100 / ≤ 1000	100 / ≤ 600
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗			

(1) Retroreflective and thru-beam systems also available.
(2) Or min. size of object: 0.2 mm.
(3) With specific reflector XUY1111, format 50 x 50 mm, ordered separately.
(4) Mounting bracket: XUZA51S, ordered separately.
(5) With reflector XUZC50HP, ordered separately.



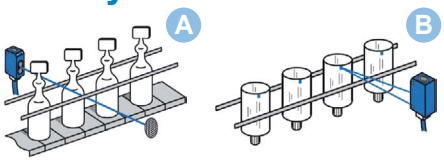
Application

System	Diffuse, analog output		Diffuse
	0–10 V	4–20 mA	
Sensing distance	**40–60** mm	**80–300** mm	**0–100** mm
Minimum size of object	1 mm	1.5 x 3.5 mm	93.1 mm
Mounting (mm)	direct: 3 M4 holes, mounting centers 40 mm		direct on conveyor with specific mounting parts
Sensitivity adjustment	Potentiometer		No
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗		Aluminum tube / x
Temperature range	+32 to +113 °F (0 to +45 °C)		−13 to +131 °F (−25 to +55 °C)
Product certification	CE, cULus		CE, UL
Dimensions, H x W x D, mm (in.)	50 x 17 x 50 (1.97 x 0.67 x 1.97)		Tube Ø12, variable length 200–900 mm (7.87–35.43 in.)

Sensors for DC applications (solid-state output: transistor)

Connection	M12 connector	M12 connector	Remote M12 connector
Transmitter / Receiver 0–10 V	**XUYPCO925L1ANSP**	**XUYPCO925L3ANSP**	**XUY609NB6H03M12**
Supply voltage limits, min./max (V) including ripple	18–28		18–30
Switching capacity, max.	3 mA		100 mA
Switching frequency (Hz)	40		1000
Overload and short-circuit protection (★) / Output state LED (⊗)	★ / ⊗		★ / ⊗

Assembly series *(for footnote references, see page 44)*



Accurate detection or very long sensing distance

Robust and compact

Application

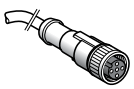
System	Thru-beam	Diffuse	Diffuse *(1)*	Retroreflective	Diffuse contrast
Sensing distance	**100** m *(2)*	**0.07** m	**0.07** m	**10–1000** mm *(3)*	**40–150** mm
Mounting (mm)	M18 x 1	M8 x 1	Direct, 2 M3 holes, mtg. centers 20 mm	Direct, 2 M3 holes, mounting centers 24 mm	
Sensitivity adjustment	Teach mode	–	Potentiometer	Teach mode	
Case: M (metal), P (plastic) / Setup assistance LEDs ⊗	P / ⊗	M / –	M / ⊗	P	
Temperature range	+14 to +113 °F (−10 to +45 °C)	−13 to +131 °F (−25 to +55 °C)	−25 to +140 °F (−25 to +60 °C)	−4 to +140 °F (−20 to +60 °C)	
Degree of protection, conforming to IEC 60529	IP67	IP67	IP67, IP69K	IP67	
Product certification	CE, UL, CSA	CE, cULus	CE, cULus, C-TICK	CE, cULus	
Dimensions, Ø x L or H x W x D, mm (in.)	Ø18 x 64 (2.52)	Ø8 x 40 (1.58)	40.8 x 16.2 x 29.5 (1.61 x 0.64 x 1.16)	35.8 x 12 x 20 (1.41 x 0.47 x 0.79)	

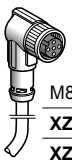
Sensors for DC applications (solid-state output: transistor)

Connection			Precabled		PVR (2 m)	PVC (2 m)		
Transmitter / Receiver	3-wire PNP	NO		–	**XUAH0515**	**XUM5BPANL2**	–	–
Connection			**Connector**	**M12**	**M8** 4-pin			
Transmitter / Receiver	3-wire PNP	NO		–	**XUAH0515S**	–	–	–
	3-wire PNP	programmable NO / NC		**XUBLAPCNM12**	–	–	**XUYBCO929LSP**	**XUYPCCO929LSP**
	3-wire NPN	programmable NO / NC		**XUBLANCNM12**	–	–	–	–
Supply voltage range (V), including ripple				10–30	10–30	10–30	10–30	10–30
Switching capacity, max. (mA) / Switching frequency (Hz)				100 / 1500	100 / 700	100 / 1000	100 / 1000	100 / 1000
Overload and short-circuit protection (★) / Output state LED (⊗)				★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

Accessories

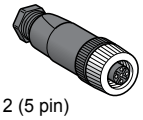
Adaptable female PUR prewired plug-in connectors *(4)*





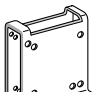
	M8 straight	M12 straight	M8 elbowed	M12 elbowed
2 m	**XZCP0941L2**	**XZCP1141L2**	**XZCP1041L2**	**XZCP1241L2**
5 m	**XZCP0941L5**	**XZCP1141L5**	**XZCP1041L5**	**XZCP1241L5**

Female connectors



M12 (5 pin)	
straight	**XZCC12FCM50B**
elbowed	**XZCC12FDM50B**

Mounting for XUYPCO925

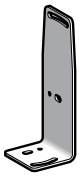


With protective cover
XUY 9251-DF525567

Simple
XUY 925-DF525568

Mounting for XUE

For compact
XUZA618

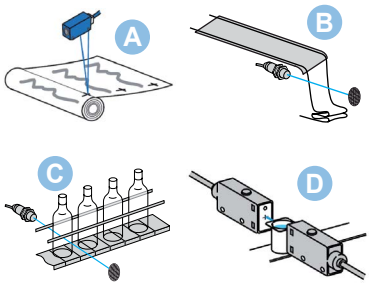


(1) With reflector XUZC250, ordered separately.
(2) On white and gray object 0.2–6 m, on black object 0.2–2.5 m.
(3) 1 PNP/NPN
(4) For other cable options, see page 55.
(5) Anti-collision/tandem

OsiSense XU

Photoelectric sensors—Application specific

Packaging series



Application	A Contrast sensors		Color sensors	D Detection of aqueous liquids
System	**Diffuse** (with teach mode)	**Diffuse** (with teach mode)	**Diffuse**	**Thru-beam infrared**
Sensing distance	**19** mm	**9** mm *(2)*	**0.02** m	**0.2** m *(1)*
Mounting (mm) *(MC = mounting centers)*	direct: MC = 40 x 40	direct: 21 x 28, M5 screws	direct: MC = 40x40	direct: MC = 20
Sensitivity adjustment	Teach button	Teach button	Teach button	Potentiometer
Case: M (metal), P (plastic) / Setup assistance LEDs ⊗	P / ⊗	M / ⊗	P / ⊗	P / ⊗
Temperature range / Degree of protection, conforming to IEC 60529	+14 to +131 °F (−10 to +55 °C) / IP65	+14 to +131 °F (−10 to +55 °C) / IP67	+14 to +131 °F (−10 to +55 °C) / IP65	+32 to +104 °F (0 to +40 °C) / IP65
Product certification	CE, cULus	CE	CE, cULus	CE
Dimensions (mm) Ø x L or H x W x D	50 x 15 x 50 (1.97 x 0.59 x 1.97)	96 x 31 x 64 (3.78 x 1.22 x 2.52)	50 x 25 x 50 (1.97 x 0.98 x 1.97)	47 x 13 x 33 (1.85 x 0.51 x 1.30)

Sensors for DC applications (solid-state output: transistor)

Connection			**M12 connector**	**M12 connector**	**M12 connector** – 8 pin	**Precabled (2 m)**
Transmitter / Receiver	3-wire PNP	**NO**	**XUKR1PSMM12**	–	**XUKC1PSMM12**	–
	3-wire NPN	**NO**	**XUKR1NSMM12**	–	**XUKC1NSMM12**	–
	3-wire PNP / NPN	programmable NO / NC	–	**XURK1KSMM12**	–	**XUMW1KSNL2**
Supply voltage range (V), including ripple			10–30	10–30	10–30	10.8–26.4
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 5000	200 / 10000	100 / 1500	100 / 1000

Application	Luminescence sensors B C	Detection of transparent materials B C		B C
System	**Diffuse** (manual)	**Retroreflective** (potentiometer)	**Retroreflective** (with teach mode) (50 x 50 reflector included)	
Sensing distance	**0.02–0.08** m	**0.1–2** m	**0–1.4** m *(4)*	**1.5** m
Mounting (mm) *(MC = mounting centers)*	M18 x 1	M3 holes, MC = 24	M18 x 1	direct: MC = 40 x 40
Sensitivity adjustment	Potentiometer	Potentiometer	Teach button	
Case: M (metal), P (plastic) / Setup assistance LEDs ⊗	M / ⊗	P / ⊗	P / ⊗	
Temperature range / Degree of protection (conforming to IEC 60529)	−13 to +131 °F (−25 to +55 °C) / IP67		+32 to +131 °F (0 to +55 °C) / IP67	−13 to +131 °F (−25 to +55 °C) / IP65
Product certification	CE, CSA, UL	CE, cURus	CE, UL, CSA, C-TICK	
Dimensions, Ø x L or H x W x D, mm (in.)	Ø18 x 95 (3.74)	33 x 20 x 11 (1.30 x 0.79 x 0.43)	Ø18 x 64 (2.52)	50 x 18 x 50 (1.97 x 0.71 x 1.97)

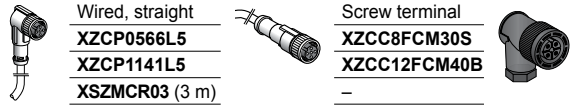
Sensors for DC applications (solid-state output: transistor)

Connection			**Precabled, PVC** (2 m)			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	–	**XUMTAPCNL2**	**XUBTAPSNL2** *(5)*	–
	3-wire NPN	programmable NO / NC	–	**XUMTANCNL2**	**XUBTANSNL2** *(5)*	–
	3-wire PNP / NPN	programmable NO / NC	–	–	–	**XUKT1KSML2**
Connection			**M12 connector**	**M8 connector**	**M12 connector**	**M12 connector**
Transmitter / Receiver	3-wire PNP	**NO**	**XU5M18U1D**	–	–	–
	3-wire PNP	programmable NO / NC	–	**XUMTAPCNM8** *(3)*	**XUBTAPSNM12** *(5)*	–
	3-wire NPN	programmable NO / NC	–	**XUMTANCNM8** *(3)*	**XUBTANSNM12** *(5)*	–
	3-wire PNP / NPN	programmable NO / NC	–	–	–	**XUKT1KSMM12**
Supply voltage range (V), including ripple			10–30	10–30	10–32	10–30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000	100 / 1000	100 / 1500

Accessories

Adaptable female plug-in connectors, including PUR prewired versions *(6)*

5 m, without LED		Wired, elbowed	Wired, straight	Screw terminal
M8 (or S)	4 pin	**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30S**
M12 (or D)	4 pin	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**
M12	8 pin	–	**XSZMCR03** (3 m)	–



Lenses for color mark

Lens for 18 mm sensing distance

XURZ01

Lens for 7 mm sensing distance

XURZ02

(1) Nominal sensing distance 50 m. Use between 10 and 20 cm, depending on the application.
(2) 7 mm with XURZ02; 18 mm with XURZ01.
(3) Also available with M12 remote connector with 0.3 m cable: replace **M8** with **L03M12**.
(4) 0–0.8 m for versions with 90° head. To order, replace **N** with **W** in the 8th position in the catalog number. Example: XUBTAPS**N**L2 becomes XUBTAPS**W**L2.
(5) Also available in stainless steel for food/beverage processing applications. To order, replace the letter **A** with **S** in the catalog number. Example: XUBT**A**PSNL2 becomes XUBT**S**PSNL2.
(6) For other cable options, see page 55.

Ecolab® food/beverage processing series

Application	Stainless steel version for resistance to harsh agents		
System	**Retroreflective polarized**	**Background suppression**	**Thru-beam**
Sensing distance	**0.4–11** m (1)	**0.03–0.55** m	**0–15** m
Mounting (mm)	2 x Ø4.3 holes		
Case: M (metal)	M (stainless steel 316L)		
Temperature range / Degree of protection, conforming to IEC 60529	−4 to +140 °F (−20 to +60 °C) / +212 °F (+100 °C) for cleaning and sterilization phase while not in service / IP67, IP69K		
Product certification	CE, Ecolab		
Dimensions, H x W x D, mm (in.)	50 x 50 x 23 (1.97 x 1.97 x 0.91)		

Sensors for DC applications (solid-state output: transistor)

Connection	**M12 connector** – 4 pin		
Transmitter / Receiver 4-wire PNP	**XUK9SPSMM12**	**XUK8SPSMM12**	**XUK2SKSMM12T** (transmitter) **XUK2SPSMM12R** (receiver)
Supply voltage range (V), including ripple	10–30		
Switching capacity, max. (mA) / Switching frequency (Hz)	100 / 600	100 / 400	100 / 500

Stainless steel version for resistance to harsh agents

System	**Multimode** *(3)*	**Retroreflective polarized 50x50 mm reflector included** *(2)*	**Diffuse** *(2)*	**Thru-beam** *(2)*
Sensing distance	(4)	**3 / 2** m	**0.15 / 0.10** m	**20 / 15** m
Mounting (mm)	M18 x 1	M18 x 1	M18 x 1	M18 x 1
Case: M (metal)	M (stainless steel)	M (stainless steel)	M (stainless steel)	M (stainless steel)
Temperature range (°C) / Degree of protection, conforming to IEC 60529	*(6)*	−13 to +131 °F (−25 to +55 °C) / IP67		
Product certification	CE, UL, CSA, C-TICK			
Dimensions Ø x L, mm (in.)	Ø18 x 64 (2.52)	Ø18 x 62 (2.44)	Ø18 x 62 (2.44)	Ø18 x 64 (2.52)

Sensors for DC applications (solid-state output: transistor)

Connection			**Precabled, PvR (2 m)**			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	**XUB0SPSNL2**	**XU9N18PP341**	**XU5N18PP341**	**XU2N18PP341**
	3-wire NPN	programmable NO / NC	**XUB0SNSNL2**	**XU9N18NP341**	**XU5N18NP341**	**XU2N18NP341**
Connection			**M12 connector**			
Transmitter / Receiver	3-wire PNP	programmable NO / NC	**XUB0SPSNM12**	**XU9N18PP341D**	**XU5N18PP341D**	**XU2N18PP341D**
	3-wire NPN	programmable NO / NC	**XUB0SNSNM12**	**XU9N18NP341D**	**XU5N18NP341D**	**XU2N18NP341D**
Thru-beam transmitter accessory		precabled (2 m)	**XUB0SKSNL2T**	–	–	–
		connector	**XUB0SKSNM12T**	–	–	–
Supply voltage range (V), including ripple			10–36	10–30	10–30	–
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 250	100 / 500	100 / 500	–

Accessories

Prewired connectors

5 m	Elbowed	Straight
	XZCPA1241L5	**XZCPA1141L5**

Ecolab reflector 50x50 (5)

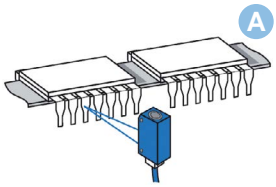
XUZC50CR

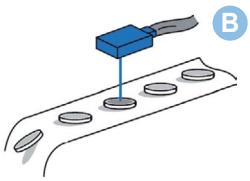
Stainless steel mounting bracket

For M18	For Compact
XUZA118	**XUZA51S**

(1) With reflector XUZC100, ordered separately.
(2) Also available with 90° head. To order, add the letter **W** after the numbers 341 in the catalog number. Example: XU9N18PP341 becomes XU9N18PP341**W** or XU9N18PP341D**W**.
(3) Also available with 90° head. To order, replace **N** with **W** in the 8th position in the catalog number. Example: XUB0SPS**N**L2 becomes XUB0SPS**W**L2.
(4) Background suppression: **0.12 m**. Diffuse: **0.3 m**. Polarized retroreflective: **3 m**. Thru-beam: **20 m**.
(5) Sensing distance for XUK9S: 3 m with XUZC50CR or 6 m with XUZC50.
(6) −13 to +131 °F (−25 to +55 °C) / IP65, IP67 double insulation conforming to IEC 60529; IP69K double insulation conforming to DIN 40050.

Photoelectric sensors
with background suppression





Application	A	B
System	**Diffuse with background suppression**	
	Sensing distance 1	**Sensing distance 2**
Sensing distance	**10–60** mm	**30–110** mm
Minimum size of object	0.3 mm	0.7 mm
Mounting (mm)	direct: 2 M3 holes, mounting centers 24 mm	
Sensitivity adjustment	Teach mode	
Case P (plastic) / Setup assistance LEDs ⊗	P	
Temperature range / Degree of protection, conforming to IEC 60529	−4 to +140 °F (−20 to +60 °C) / IP67	
Product certification	CE, cULus	
Dimensions, H x W x D, mm (in.)	35.8 x 12 x 20 (1.41 x 0.47 x 0.79)	

Sensors for DC applications (solid-state output: transistor)

Connection			**M8 connector**, 4 Pin	**M8 connector**, 4 Pin
Transmitter / Receiver	**PNP**	**NO**	–	–
	NPN	**NO**	–	–
	PNP	programmable **NO / NC**	**XUYPSCO929L1SP**	**XUYPSCO929L2SP**
Supply voltage range (V), including ripple			10–30	10–30
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗

XUWSA●●W
XUWSA●●R

XUZL●002

XUZL●001

XUZLR033

Vision sensors

Description	Nominal voltage	Focal length	Catalog number	Weight kg
Vision sensors with white light				
Vision sensor	24 V ⎓	6 mm	**XUWSA06W** *(1)*	0.160
		12 mm	**XUWSA12W** *(1)*	0.160
Vision sensors with red light				
Vision sensor	24 V ⎓	6 mm	**XUWSA06R** *(1)*	0.160
		12 mm	**XUWSA12R** *(1)*	0.160

Configuration software

Configuration of XUW vision sensors requires the use of software installed on a PC. The software comes on a CD-ROM included with the sensor. Updates are available from TEsensors.us.

Additional lighting (if necessary, depending on the application)

Description	Nominal voltage	Size, mm	Catalog number	Weight kg
Direct linear lighting by LED				
White light	24 V ⎓	45 x 45	**XUZLW001** *(2)*	0.060
Red light	24 V ⎓	45 x 45	**XUZLR001** *(2)*	0.060
Ring lighting by LED				
White light	24 V ⎓	Ø115	**XUZLW002**	0.150
Red light	24 V ⎓	Ø115	**XUZLR002**	0.150
Back-lighting by LED				
Description	**Nominal voltage**	**Size, mm**	**Catalog number**	**Weight kg**
Red light	24 V ⎓	47 x 47 x 15	**XUZLR033**	0.045
	24 V ⎓	94 x 94 x 10	**XUZLR063**	0.160
	24 V ⎓	133 x 133 x 10	**XUZLR103**	0.290

Accessories

PUR Prewired connectors *(1)*

Straight

Elbowed

	M8 (4 pin)		**M12** (4 pin)		**7/8"** (5 pin)
	Straight	Elbowed	Straight	Elbowed	Straight
2 m	**XZCP0941L2**	**XZCP1041L2**	**XZCP1141L2**	**XZCP1241L2**	**XZCP1764L2**
5 m	**XZCP0941L5**	**XZCP1041L5**	**XZCP1141L5**	**XZCP1241L5**	**XZCP1764L5**

(1) For other cable options, see page 55.

XUZASW003

XUZASW002

XUZASW001

XUZASW009

XUZASW008

XUZASW006

Mounting accessories

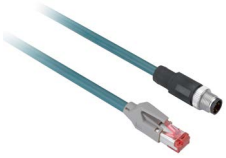
Description	Catalog number	Weight kg
Vision sensor mounting accessories		
Dovetail bracket included with sensor XUW SA●●●	**XUZASW001**	0.014
Simple bracket	**XUZASW002**	0.017
2-axis dovetail clamp	**XUZASW003**	0.210
Lighting system mounting and connection accessories		
Clamp for direct lighting XUZ LW001 and XUZ LR001 (included with the lighting system)	**XUZASW001**	0.014
Bracket for ring lighting XUZ LW002 and XUZ LR002	**XUZASW009**	0.140
Assembly accessories		
Ø12 mm mounting rod Length: 30 cm	**XUZASW006**	0.260
Mounting clamp for Ø12 mm rod XUZ ASW006	**XUZASW008**	0.039
Mounting and adjustment clamp for 2 x Ø12 mm tubes XUZ ASW006	**XUZASW005**	0.300

(1) The sensor comes with:
*– a dovetail mounting clamp, **XUZASW001***
– a CD-ROM containing the configuration software, and a user guide for the software and sensor (in French, English, and German)
– a screwdriver and a hexagon key (Allen wrench).
*(2) Lighting systems **XUZLW001** and **XUZLR001** include mounting clamp **XUZASW001** and a hexagon key (Allen wrench).*

Cabling accessories

XZC PB44P14L●●

XZC PB45P14L●●



XGS Z12E45●●

XGS Z22E45●●

XZC RB4444P14L●●

XZC RB4545P14L●●

XUZSW003

Description	Cable material	Length	Catalog number	Weight kg
For connecting the vision sensor: power supply and I/O				
Straight pre-wired connectors shielded female M12 connector, 12-wire	PUR	5 m	**XZCPB44P14L5**	0.460
		10 m	**XZCPB44P14L10**	0.870
Pre-wired elbowed connectors shielded female M12 connector, 12-wire	PUR	5 m	**XZCPB45P14L5**	0.460
		10 m	**XZCPB45P14L10**	0.870
For connecting the vision sensor directly to the PC when configuring, or to a network				
Ethernet jumper cables, M12 straight/RJ45 shielded cable, straight cabling	PUR	3 m	**XGSZ12E4503**	0.140
		10 m	**XGSZ12E4510**	0.440
Ethernet jumper cables, M12 elbowed/RJ45 shielded cable, straight cabling	PUR	3 m	**XGSZ22E4503**	0.140
		10 m	**XGSZ22E4510**	0.440
For connecting the vision sensor to additional lighting				
Jumper cable, female M12 straight / female M12 straight shielded cable, 12-wire	PUR	0.5 m	**XZCRB4444P14L05**	0.030
		2 m	**XZCRB4444P14L2**	0.120
Jumper cable, female M12 elbowed / female M12 elbowed shielded cable, 12-wire	PUR	0.5 m	**XZCRB4545P14L05**	0.030
		2 m	**XZCRB4545P14L2**	0.120

For linking an XZCRB4●●●P14L● jumper cable, a back-lighting device, and the sensor (see instruction sheet HRB43229)

Description	Material	Size, mm	Catalog number	Weight kg
Connection adapter for back-lighting devices (includes dovetail mounting clamp XUZASW001)	ABS	45 x 45 x 25	**XUZSW003**	0.060

Photoelectric sensors, fiber optic
Amplifier

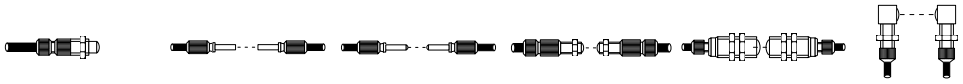
	+/–potentiometer	Teach	Teach + Timer	Teach + Timer
Max. / usable sensing distance	Depending on fiber used, plastic only			
Mounting (mm)	DIN rail or direct: mounting centers 25, M3 screws			
Sensitivity adjustment	+/− numeric potentiometer	using teach mode	+/− numeric potentiometer	using teach mode
Case P (plastic) / Setup assistance LEDs ⊗	P / ⊗	P / ⊗	P / ⊗	P / ⊗ and 4-digit display
Temperature range	+32 to +140 °F (0 to +60 °C)	+14 to +131 °F (−10 to +55 °C)	+32 to +140 °F (0 to +60 °C)	+14 to +131 °F (−10 to +55 °C)
Degree of protection, conforming to IEC 60529	IP65	IP65 *(1)*	IP65	IP65 *(1)*
Product certification	CE, cULus	CE, cULus, cURus	CE, cULus	CE, cULus, cURus
Dimensions L x H x W, mm (in.)	60 x 30 x 13 (2.36 x 1.18 x 0.51)	65 x 40 x 10 (2.56 x 1.58 x 0.39)	60 x 30 x 13 (2.36 x 1.18 x 0.51)	65 x 40 x 10 (2.56 x 1.58 x 0.39)

Sensors for DC applications (solid-state output: transistor)

Connection			**Precabled, PVC (2 m)**			
Catalog numbers	3-wire **PNP**, programmable	**NO / NC**	–	**XUDA1PSML2**	–	**XUDA2PSML2**
Amplifier	3-wire **NPN**, programmable	**NO / NC**	–	**XUDA1NSML2**	–	**XUDA2NSML2**
Connection			**M8 connector** – 4 Pin			
Catalog numbers	3-wire **PNP**, programmable	**NO / NC**	–	**XUDA1PSMM8**	–	**XUDA2PSMM8**
Amplifier	3-wire **NPN**, programmable	**NO / NC**	–	**XUDA1NSMM8**	–	**XUDA2NSMM8**
	3-wire **PNP/NPN,** programmable	**NO / NC**	**XUYAFVCO966S** (Glass)	–	**XUYAFVCO946S** (Glass)	–
			XUYAFPCO966S (Plastic)	–	**XUYAFPCO946S** (Plastic)	–
Supply voltage range (V), including ripple			10–30	10.8–26.4	10–30	10.8–26.4
Switching capacity, max. (mA) / Switching frequency (Hz)			100 / 1000	100 / 1000	100 / 1000 time delayable	100 / 1000 time delayable
Overload and short-circuit protection (★) / Output state LED (⊗)			★ / ⊗	★ / ⊗	★ / ⊗	★ / ⊗

Ecofiber system—assemble your own plastic fibers

Fiber Ø1 mm	10 m	20 m	50 m
Catalog numbers	**XUFZ910**	**XUFZ920**	**XUFZ950**

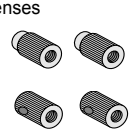


End fittings						
Sensing distance (mm)	**70**	**200**	**800**	**1200**	**4000**	**1200**
Type	threaded end fitting	plain end fitting, Ø3, 9 mm	plain end fitting, Ø3, 9 mm	threaded end fitting	threaded end fitting	90 ° mirror, threaded end fitting
Thread	M8 x 1, 10 mm	–	–	M6 x 1, 10 mm	M6 x 1, 10 mm	M6 x 1, 3–10 mm
Lens	yes	no	yes	yes	yes	yes
Catalog numbers	**XUYA110**	**XUYA210**	**XUYA211**	**XUYA212**	**XUYA213**	**XUYA220**

Accessories

For thru-beam system plastic fiber optics

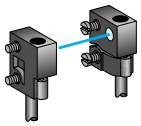
Lenses



For increasing sensing distance (pair) **XUFZ01**

With 90° mirror (pair) **XUFZ02**

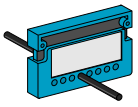
Mounting clamp with lens (set of 2)



Front screw mounting for fiber optics XUFZ920 **XUFZ04**

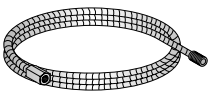
For all system plastic fiber optics

Fiber trimmer



For trimming fibers to length (included with all fiber optics) **XUFZ11**

Protective metal tubing

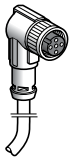


1 m, for fibers with threaded end fittings
For M4 thread **XUFZ210**
For M6 thread **XUFZ310**

Plug-in PUR prewired female connectors *(2)*

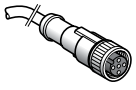
Cable length 5 m, without LED

prewired, elbowed



XZCP1041L5

prewired, straight



XZCP0941L5

(1) IP65 with Ø1 fiber / IP64 with Ø0.5 fiber.
(2) For other cable options, see page 55.

Plastic fiber optic light guides (2 m)

M4 / M2.6 *(1)* | M4 / 90 mm | M3 / M2.6 *(1)* | Long range fibers with integrated lens M8 / 20 mm | Long range fibers M4 / M2.6 *(1)* | Flexible fibers M4 / M2.6 *(1)*

System	Thru-beam					
Sensing distance (mm)	200 or 1500 *(2)*	180	50 or 1000 *(2)*	2500	300 or 2000 *(2)*	100 or 750 *(2)*
Fiber cross-section						
Fiber Ø (mm)	Ø1	Ø1	Ø0.5	Ø1	Ø1.5	Ø1
Sheath Ø (mm)	Ø2.2	Ø2.2	Ø1	Ø2.2	Ø2.2	Ø2.2
Temperature range	−13 to +140 °F (−25 to +60 °C)					
Catalog numbers	**XUFN12301**	**XUFN12311**	**XUFN35301**	**XUFN2L01L2**	**XUFN2P01L2**	**XUFN2S01L2**
Mounting	M4 x 0.7	M4 x 0.7	M3 x 0.5	M8 x 1.25	M2.6 x 0.45 / M4 x 0.7	M2.6 x 0.45 / M4 x 0.7

(1) Can be used with 90° mirror XUFZ02 (see page 50).
(2) With lens accessory XUFZ01 (see page 50).

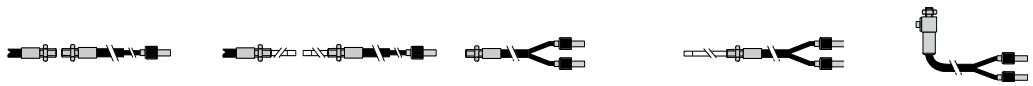
M6 | M4 / M6 | M6/90 mm | M4 / M2.6

System	Diffuse			
Sensing distance (mm)	70	60	60	15
Fiber cross-section				
Fiber Ø (mm)	Ø1	Ø1 / Ø0.265 x 16	Ø1	Ø0.5 / Ø0.23 x 4
Sheath Ø (mm)	Ø2.2 x 2	Ø2.2 x 2	Ø2.2 x 2	Ø1 x 2
Temperature range (°C)	−13 to +140 °F (−25 to +60 °C)			
Catalog numbers	**XUFN05321**	**XUFN05323**	**XUFN05331**	**XUFN02323**
Mounting	M6 x 0.75	M6 x 0.75 / M4 x 0.7	M6 x 0.75	M4 x 0.7

M4 / 90 mm | M4 / M2.6 | Long range fibers M6 / 15 mm

System	Diffuse		
Sensing distance (mm)	18	18	95
Fiber cross-section			
Fiber Ø (mm)	Ø0.5	Ø0.5	Ø1.5
Sheath Ø (mm)	Ø1 x 2	Ø1 x 2	Ø2.2 x 2
Temperature range	−13 to +140 °F (−25 to +60 °C)		
Catalog numbers	**XUFN01331**	**XUFN01321**	**XUFN5P01L2**
Mounting	M4 x 0.7	M4 x 0.7	M6 x 0.75

Glass fiber optic light guides (0.6 m)



M4 | M4 / Ø2.5 x 89 | M4 | M4 / Ø2.5 x 89 | M4

System		Thru-beam		Diffuse		
Sensing distance (mm)		**200**		**80**		
Fiber cross-section						
End fitting		Straight	Adaptable	Straight	Adaptable	90 °
Fiber Ø (mm)		1		1		
Sheath Ø (mm)		2.2		2.2		
Temperature range		PVC sheath: −13 to +140 °F (−25 to +60 °C) / Metal wound: −13 to +248 °F (−25 to +120 °C) / Flexible stainless steel: −13 to +392 °F (−25 to +200 °C)				
Catalog numbers	PVC sheath	**XUYFVERSD61**	**XUYFVERSC61**	**XUYFVPSD61**	**XUYFVPSC61**	**XUYFVPSL61**
	Metal wound	**XUYFVERMD61**	**XUYFVERSC61**	**XUYFVPMD61**	**XUYFVPMC61**	**XUYFVPML61**
	Flexible stnl. steel	**XUYFVERTD61**	**XUYFVERTC61**	**XUYFVPTD61**	**XUYFVPTC61**	**XUYFVPTL61**

Ultrasonic sensors
Detection of any material

		M12	M18	M18
Nominal sensing distance, Sn	**Diffuse or retroreflective**	**5** or **10** cm (**2** or **4** in.) depending on the model	**15**, **25**, or **50** cm (**6**, **10**, or **20** in.) depending on the model	**5** cm (**2.0** in.)
	Thru-beam	**10** or **20** cm (**4** or **8** in.)	**10**, **30**, **61**, or **100** cm (**4**, **12**, **24**, or **40** in.) depending on the model	–
Operating zone for Diffuse mode		XX512A1: 0.64–5.1 cm (0.25– 2 in.) XX512A2: 0.64–10.2 cm (0.25– 4 in.)	XX518A2: 1.9–15.2 cm (1.25– 10 in.) XX518A3: 5.1–50.8 cm (2–20 in.)	0.2–5.0 cm (0.08– 2 in.)
Detection zone		Fixed	XX518A3: adjustable with remote push button XX518A1, XXT18, XXR18: fixed	Fixed
Case: M (metal), P (plastic)		P	P or M, depending on the model	M
Product certification		CE, UL	CE, UL, CSA	CE, UL, CSA
Temperature range		−4 to +149 °F (−20 to +65 °C)	XX518A1●●●: +32 to +122 °F (0 to +50 °C) XX518A3●●●: −4 to 149 °F (−20 to +65 °C) XXT18, XXR18: +32 to +140 °F (0 to +60 °C)	+32 to +140 °F (0 to +60 °C)
Degree of protection		IP67 (conforming to IEC 60529)		
Dimensions Ø x L, mm (in.)		M12 x 50 (1.97)	M18 x 65 (2.56)	M12: M18 x 75 (2.95) Cable: M18 x 65 (2.56)

Diffuse or Retroreflective mode with Discrete output for DC applications (24 V)

Connection			**2 m precabled, M8 or M12 connector**	**2 m precabled, M12 connector**	**2 m precabled, M12 connector**
3-wire	**PNP**	**NO**	**XX512A2PAM8** (Sn = 10 cm / 4 in.)	**XX518A3PAM12** (Sn = 50 cm / 20 in.) **XXB18A3PAM12**	**XXV18B1PAL2** (cable) (Sn = 5 cm / 2 in.) **XXV18B1PAM12** (M12) (Sn = 5 cm / 2 in.)
	NPN	**NO**	**XX512A2NAM8** (Sn = 10 cm / 4 in.)	**XX518A3NAM12** (Sn = 50 cm / 20 in.)	**XXV18B1NAL2** (cable), (Sn = 5 cm / 2 in.) **XXV18B1NAM12** (M12) (Sn = 5 cm / 2 in.)
4-wire	**PNP/NPN**	**NO**	**XX512A1KAM8** (Sn = 5 cm / 2 in.)	**XX518A1KAM12** (Sn = 15 cm / 6 in.)	–
			XX512A2KAM8 (Sn = 10 cm / 4 in.)	**XX518A20KAM12** (Sn = 25 cm / 10 in.)	–
Application—monitoring levels					
	emptying (pump out)	**PNP, NO**	**XX512A208PAFM8**	**XX218A3PHM12** (1 NO)	–
	filling (pump in)	**PNP, NO**	**XX512A208PAHM8**	**XX218A3PFM12** (1 NO)	–
Supply voltage range (V), including ripple			12–24, ±10%		
Switching capacity, max. (mA)			<100		
Short-circuit protection (★)			★		
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗	⊗ / ⊗ except XX518A1●● (− / −)	
Voltage drop, closed state (V) at I nominal			<1		
Response time (ms)			4	4 or 15, depending on the model	4
Transmission frequency (kHz)			500	300 or 500, depending on the model	360

Diffuse mode with Analog output for DC applications (24 V)

Connection			**M12 connector**		
4-wire	**Analog**	**0–10 V** output	–	**XX918A3F1M12**	–
		4–20 mA output	–	**XX918A3C2M12**	–
Supply voltage range (V), including ripple			–	15–24, ±10%	–
Short-circuit protection (★)			–	★	–
Output state LED (⊗) / Power on LED (⊗)			–	⊗ / ⊗	–
Transmission frequency (kHz)			–	300 or 500, depending on the model	–

Thru-beam mode with Discrete output for DC applications (24 V)

Connection		**M8 connector**	**M12 connector**	
4-wire	Receiver (NO/PNP + NO/NPN)	**XXR12A8KAM8**	**XXR18A3KAM12** (Sn = 61 cm / 24 in.) **XXR18A4KAM12** (Sn = 100 cm / 40 in.)	–
	Receiver (NC/PNP + NC/NPN)	**XXR12A8KBM8**	**XXR18A3KBM12** (Sn = 61 cm / 24 in.) **XXR18A4KBM12** (Sn = 100 cm / 40 in.)	–
	Transmitter	**XXT12A8M8**	**XXT18A3M12** (Sn = 61 cm / 24 in.) **XXT18A4M12** (Sn = 100 cm / 40 in.)	–

Accessories

See page 53 for progamming and connectors, and page 54 for mounting.

Ultrasonic sensors
Detection of any material

		M30			M30: Long range
Nominal sensing distance, Sn	**Diffuse or Retroreflective**	**1 m (39 in.)**	**1 m (39 in.)**	**2 m (79 in.)**	**8 m (315 in. / 26 ft)**
Operating zone for Diffuse mode		0.1–1 m (4–39 in.)	0.05–0.99 m (2–39 in.)	0.12–2 m (4.7–79 in.)	0.2–8 m (8–315.0 in.)
Detection zone—adjustable using a push button		remote push button	built-in push button		
Case: M (metal), P (plastic)		P	P or M		P
Product certification		CE, UL, CSA			
Temperature range		+32 to +158 °F (0 to +70 °C)	+32 to +122 °F (0 to +50 °C)		−4 to +140 °F (−20 to +60 °C) Option: min. −40 °F (−40 °C)
Degree of protection, conforming to IEC 60529		IP67			
Dimensions Ø x L, mm (in.)		M30 x 78 (3.07)	M30 x 85 (3.35)		M30 x 106 (4.17)

Diffuse or Retroreflective mode with Discrete output for DC applications (24 V)

Connection			**precabled (2 m) or M12 connector**			
3-wire	**PNP**	**NO**	**XX6V3A1PAM12 XXBV3A1PAM12**	–	–	–
	NPN	**NO**	**XX6V3A1NAM12**	–	–	–
4-wire	**PNP/NPN**	**NO**	–	**XX630A1KAM12**	**XX630A2KAM12**	**XX630A3KAM12**
	PNP	**NO + NC**	–	**XX630A1PCM12** *(1)*	**XX630A2PCM12**	**XX630A3PCM12**
	NPN	**NO + NC**	–	**XX630A1NCM12** *(1)*	**XX630A2NCM12**	**XX630A3NCM12**
Application—monitoring levels						
	emptying	**PNP, 2 NO**	**XX2V3A1PFM12**	**XX230A10PA00M12**	**XX230A20PA00M12**	**XX230A30PA00M12**
	filling	**PNP, 2 NO**	**XX2V3A1PHM12**	**XX230A11PA00M12**	**XX230A21PA00M12**	**XX230A31PA00M12**
Supply voltage range (V), including ripple			12–24, ±10%			
Switching capacity, max. (mA)			<100			
Short-circuit protection (★)			★			
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗			
Voltage drop, closed state (V) at I nominal			<1			
Response time (ms)			30	20	30	200
Transmission frequency (kHz)			180	200		75

Proximity mode with Analog output for DC applications (24 V)

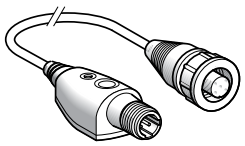
Connection			**M12 connector**			
4-wire	**Analog**	**0–10 V** output	**XX9V3A1F1M12**	**XX930A1A1M12** *(1)*	**XX930A2A1M12**	**XX930A3A1M12**
		4–20 mA output	**XX9V3A1C2M12**	**XX930A1A2M12** *(1)*	**XX930A2A2M12**	**XX930A3A2M12**
Supply voltage range (V), including ripple			15–24, ±10%			
Short-circuit protection (★)			★			
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗			
Transmission frequency (kHz)			180	200	200	75

Accessories

Programming

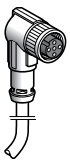
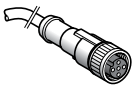
Remote control

teach button for use with sensors XX●18A3●●●, XX●V1●●●, XX●V3●●● and XX●D1



XXZPB100

Adaptable female plug-in connectors

		PUR Prewired connectors *(2)*		**Other connectors**
		elbowed 	straight 	screw terminal
5 m (without LED)				
M8	for XX512A1●●●	**XZCP1041L5**	**XZCP0941L5**	**XZCC8FCM40V**
	for XX512A2●●●	**XZCP0666L5**	**XZCP0566L5**	**XZCC8FCM30V**
M12	for all sensors except XX512●●●	**XZCP1241L5**	**XZCP1141L5**	**XZCC12FCM40B**
M12	for analog sensors	**XZCPVB1241L5**	**XZCPVB1141L5**	**–**

For mounting, see page 54.

(1) Stainless steel 303 version also available. To order, replace the first letter **A** in the catalog number with **S**. Example: XX630**A**1PCM12 becomes XX630**S**1PCM12.
(2) For PVC cable, see page 55.

Ultrasonic sensors
Detection of any material

		Mini flat	Flat	Combined multi-mounting	Flat 80 x 80
Nominal sensing distance, Sn	**Diffuse or Retroreflective**	**10 cm (1–4 in.)**	**5–25 cm (2–10 in.)**	**5–50 cm (2–20 in.)**	**10–100 cm (4–39 in.)**
	Thru-beam	**20 cm (4 or 8 in.)**	**10, 30, 61, or 100 cm (4, 12, 24, or 40 in.) depending on the model**	–	–
Operating zone for Diffuse mode		0.62–10.2 cm (0.24–4 in.)	5.1–25.4 cm (2–10 in.)	5.1–50.8 cm (2–20 in.)	10–100 cm (4–39 in.)
Detection zone		Fixed (option: adjustable)		Adjustable with remote push button	
Case, P (plastic)		P			
Product certification		CE, UL, CSA			
Temperature range		−4 to +149 °F (−20 to +65 °C)	+32 to +122 °F (0 to +50 °C)	−22 to +158 °F (−30 to +70 °C)	+32 to +158 °F (0 to +70 °C)
Degree of protection, conforming to IEC 60529		IP67			
Dimensions, Ø x L or H x W x D, mm (in.)		33 x 19 x 7.6 (1.30 x 0.75 x 0.30)	74 x 30 x 16 (2.91 x 1.18 x 0.63)	M18 / 18 x 33 x 60 (0.71 x 1.30 x 2.36)	80 x 80 x 34 (3.15 x 3.15 x 1.34)

Proximity or Retroreflective mode with Discrete output for DC applications (24 V)

Connection			precabled, **M8** or **M12** on 0.15 m pigtail	precabled or **M12 connector**		
3-wire	**PNP**	**NO**	**XX7F1A2PAL01M12**	**XX7K1A2PAM12**	**XX7V1A1PAM12**	**XX8D1A1PAM12**
		Retroreflective mode	–	–	**XXBV1A1PAM12**	**XXBD1A1PAM12**
	NPN	**NO**	**XX7F1A2NAL01M12**	**XX7K1A2NAM12**	**XX7V1A1NAM12**	**XX8D1A1NAM12**
Supply voltage range (V), including ripple			12–24, ±10%			
Switching capacity, max. (mA)			<100			
Short-circuit protection (★)			★			
Output state LED (⊗) / Power on LED (⊗)			⊗ / ⊗			
Voltage drop, closed state (V) at I nominal			<1			
Response time (ms)			4	4	15	30
Transmission frequency (Hz)			500	500	300	180

Proximity mode with Analog output for DC applications (24 V)

Connection			–		**M12 connector**	
4-wire	**Analog**	**0–10 V** output	–	**XX9K1A224A3M12**	**XX9V1A1F1M12**	**XX9D1A1F1M12**
		4–20 mA output	–	**XX9K1A224A4M12**	**XX9V1A1C2M12**	**XX9D1A1C2M12**
Supply voltage range (V), including ripple			–	15–24, ±10%	15–24, ±10%	15–24, ±10%
Short-circuit protection (★)			–	★	★	★
Output state LED (⊗) / Power on LED (⊗)			–	⊗ / ⊗	⊗ / ⊗	⊗ / ⊗
Transmission frequency (kHz)			–	500	300	180

Thru-beam mode with Discrete output for DC applications (24 V)

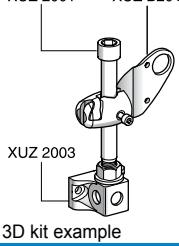
Connection		–		
4-wire	Receiver (NO/PNP + NO/NPN)	**XXRF1A8KAM12L**	**XXRK1A3KAM12** (Sn = 0.61 m / 24.0 in.) **XXRK1A4KAM12** (Sn = 1 m / 39.4 in.)	–	–
	Receiver (NC/PNP + NC/NPN)	**XXRF1A8KBM12L**	**XXRK1A3KBM12** (Sn = 0.61 m / 24.0 in.) **XXRK1A4KBM12** (Sn = 1 m / 39.4 in.)	–	–
	Transmitter	**XXT1A8M12L**	**XXTK1A3M12** (Sn = 0.61 m / 24.0 in.) **XXTK1A4M12** (Sn = 1 m / 39.4 in.)	–	–

Accessories

Mountings—3D mountings with ball joint

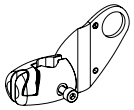
XUZ 2001 XUZ B20●●

XUZ 2003



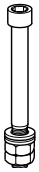
3D kit example

Bracket with ball joint for cylindrical sensors



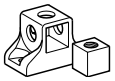
for	
Ø12	**XUZB2012**
Ø18	**XUZB2003**
Ø30	**XUZB2030**

M12 rod for ball joint



XUZ2001

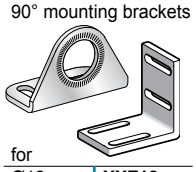
Mounting support for M12 rod



XUZ2003

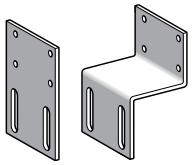
Simple mounting devices

90° mounting brackets



for	
Ø12	**XXZ12**
Ø18	**XUZA118**
Ø30	**XXZ30**
XX7F	**XXZ1933**

Mounting plates for XX7K



flat	**XXZ3074F**
cranked	**XXZ3074S**

See page 53 for progamming and connectors.

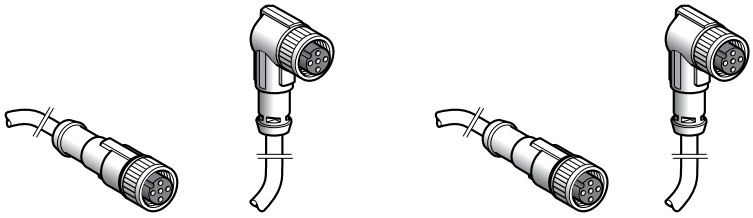
Cabling system
Prewired female connectors

PVC cable
M8 and M12 connector

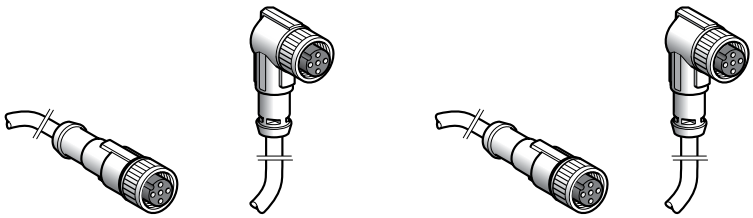
PVC cable
1/2" and 7/8" connector

PUR cable halogen free
M8, M12, 1/2" and 7/8" connector

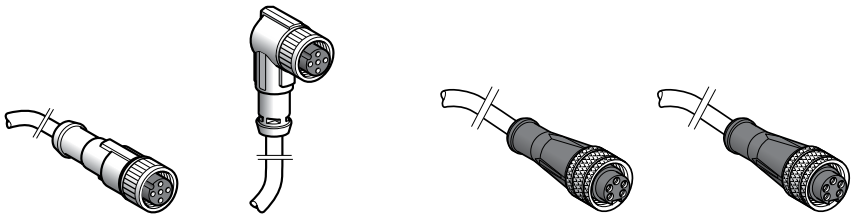
Reinforced PVC cable, stainless steel ring
M8, M12, and 1/2" connector (IP69K)



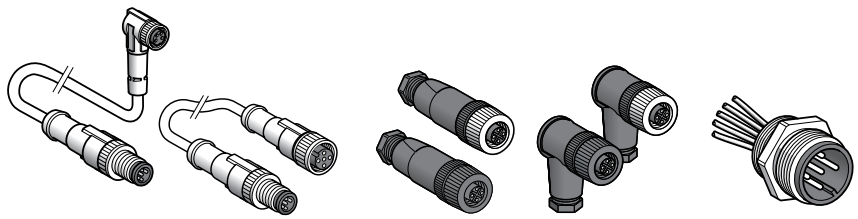
Connector Size		M8 Straight 3 pin	Elbowed 3 pin	Straight 4 pin	Elbowed 4 pin
Catalog numbers	PVC cable	**XZCPV0566L•**	**XZCPV0666L•**	**XZCPV0941L•**	**XZCPV1041L•**
	PUR cable	**XZCP0566L•**	**XZCP0666L•**	**XZCP0941L•**	**XZCP1041L•**
	PVC cable IP69K	**XZCPA0566L•**	–	**XZCPA0941L•**	–



Connector Size		M12 Straight 4 pin	Elbowed 4 pin	Straight 5 pin	Elbowed 5 pin
Catalog numbers	PVC cable	**XZCPV1141L•**	**XZCPV1241L•**	**XZCPV1164L•**	**XZCPV1264L•**
	PUR cable	**XZCP1141L•**	**XZCP1241L•**	**XZCP1164L•**	**XZCP1264L•**
	PVC cable IP69K	**XZCPA1141L•**	**XZCPA1241L•**	**XZCPA1164L•**	–
	PVC shielded for analog sensors	**XZCPVB1141L•**	**XZCPVB1241L•**	–	–



Connector Size		1/2" Straight 3 pin	Elbowed 3 pin	7/8" Straight 3 pin	Straight 5 pin
Catalog numbers *(2)*	PVC cable	**XZCPV1865L•**	**XZCPV1965L•**	**XZCPV1670L•**	**XZCPY1764L•** *(1)*
	PUR cable	**XZCP1865L•**	**XZCP1965L•**	**XZCP1670L•**	**XZCP1764L•**
	PVC cable IP69K	**XZCPA1865L•**	**XZCPA1965L•**	–	–



Other accessories *(3)*	Jumpers	Connector	Receptacle
Catalog numbers	**XZCR•••**	**XZCC•••**	**XZCE•••**

(1) Cable material is yellow PVC and STOOW.
(2) Complete each catalog number by adding the length of cable: **2** for 2 m (6.6 ft), **5** for 5 m (16.4 ft) and **10** for 10 m (32.8 ft).
Example: XZCPV1141L**2** is a prewired M12 connector with 4 contacts and a 2 m PVC cable.
(3) For more information on XZ jumpers, connectors, and receptacles, see TEsensors.us or the *Sensors* master catalog, 9006CT1007.

OsiSense XCC

Opto-electronic rotary encoders
Incremental

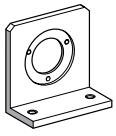
Diameter of housing (mm)		Ø40	Ø40	Ø58	Ø58		Ø58 Parametrable	Ø90
						Stainless steel		
Shaft Ø (mm)		**Ø6**	**Ø6**	**Ø6**	**Ø10**		**Ø14** *(1)*	**Ø12**
Type of shaft *(2)*		**solid-shaft**	**through-shaft**	**solid-shaft**	**solid-shaft**		**through-shaft**	**solid-shaft**
Maximum rotational speed (rpm)		9000	9000	9000	9000		6000	6000
Maximum frequency (kHz)		100	100	300	300		300	100
Maximum load (daN)		2	2	10	10	25	5	20
Torque (N•cm)		0.2	0.25	0.4	0.4		0.6	1
Product certification		CE	CE	CE	CE		CE	CE
Temperature range		−4 to +176 °F (−20 to +80 °C)	−4 to +176 °F (−20 to +80 °C)	−22 to +212 °F (−30 to +100 °C)	−22 to +212 °F (−30 to +100 °C)		−22 to +158 °F (−30 to +70 °C)	−4 to +176 °F (−20 to +80 °C)
Degree of protection, conforming to IEC 60529		IP54	IP52	IP65 / IP67 *(3)*	IP65 / IP67 *(3)*	IP69K	IP65	IP66
Supply voltage	5 V, RS-422	4.5–5.5 V	4.5–5.5 V	4.75–30 V	4.75–30 V		4.75–30 V	4.5–5.5 V
	Push-pull	11–30 V	11–30 V	5–30 V	5–30 V		5–30 V	11–30 V
Connection	*Precabled = 2 m*	**Precabled**, radial		**M23 male connector**, radial		**Precabled**, axial	**M23 male connector**, radial	
Resolution (Points)	Output stage							
100	5 V, RS-422	**XCC1406PR01R**	**XCC1406TR01R**	**XCC1506PS01X**	**XCC1510PS01X**	–	–	**XCC1912PS01RN**
	Push-pull	**XCC1406PR01K**	**XCC1406TR01K**	**XCC1506PS01Y**	**XCC1510PS01Y**	–	–	**XCC1912PS01KN**
360	5 V, RS-422	**XCC1406PR03R**	**XCC1406TR03R**	**XCC1506PS03X**	**XCC1510PS03X**	–	–	**XCC1912PS03RN**
	Push-pull	**XCC1406PR03K**	**XCC1406TR03K**	**XCC1506PS03Y**	**XCC1510PS03Y**	**XCC1510SPA03Y**	–	**XCC1912PS03KN**
500	5 V, RS-422	**XCC1406PR05R**	**XCC1406TR05R**	**XCC1506PS05X**	**XCC1510PS05X**	–	–	**XCC1912PS05RN**
	Push-pull	**XCC1406PR05K**	**XCC1406TR05K**	**XCC1506PS05Y**	**XCC1510PS05Y**	–	–	**XCC1912PS05KN**
1000	5 V, RS-422	**XCC1406PR10R**	**XCC1406TR10R**	**XCC1506PS10X**	**XCC1510PS10X**	–	–	**XCC1912PS10RN**
	Push-pull	**XCC1406PR10K**	**XCC1406TR10K**	**XCC1506PS10Y**	**XCC1510PS10Y**	–	–	**XCC1912PS10KN**
1024	5 V, RS-422	**XCC1406PR11R**	**XCC1406TR11R**	**XCC1506PS11X**	**XCC1510PS11X**	–	–	**XCC1912PS11RN**
	Push-pull	**XCC1406PR11K**	**XCC1406TR11K**	**XCC1506PS11Y**	**XCC1510PS11Y**	**XCC1501SPA11Y**	–	**XCC1912PS11KN**
2500	5 V, RS-422	–	–	**XCC1506PS25X**	**XCC1510PS25X**	–	–	**XCC1912PS25RN**
	Push-pull	–	–	**XCC1506PS25Y**	**XCC1510PS25Y**	–	–	**XCC1912PS25KN**
3600	5 V, RS-422	–	–	–	–	–	–	**XCC1912PS36RN**
	Push-pull	–	–	–	–	–	–	**XCC1912PS36KN**
256–4096	5 V, RS-422	–	–	–	–	–	**XCC1514TSM02X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM02Y**	–
5000	5 V, RS-422	–	–	**XCC1506PS50X**	**XCC1510PS50X**	–	–	**XCC1912PS50RN**
	Push-pull	–	–	**XCC1506PS50Y**	**XCC1510PS50Y**	**XCC1510SPA50Y**	–	**XCC1912PS50KN**
360–5760	5 V, RS-422	–	–	–	–	–	**XCC1514TSM03X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM03Y**	–
500–8000	5 V, RS-422	–	–	–	–	–	**XCC1514TSM05X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM05Y**	–
10000	5 V, RS-422	–	–	–	–	–	–	**XCC1912PS00RN**
	Push-pull	–	–	–	–	–	–	**XCC1912PS00KN**
1024–16,384	5 V, RS-422	–	–	–	–	–	**XCC1514TSM11X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM11Y**	–
5000–80,000	5 V, RS-422	–	–	–	–	–	**XCC1514TSM50X**	–
	Push-pull	–	–	–	–	–	**XCC1514TSM50Y**	–

Accessories

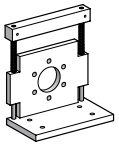
Shaft couplings

with spring	Bore diameter		Catalog number
	encoder side	machine side	
	6 mm	6 mm	**XCCRAR0606**
	6 mm	8 mm	**XCCRAR0608**
	6 mm	10 mm	**XCCRAR0610**
	10 mm	10 mm	**XCCRAR1010**
	10 mm	12 mm	**XCCRAR1012**
elastic			
	6 mm	6 mm	**XCCRAE0606**

Mounting brackets



Plain bracket		
	for Ø58 mm	**XCCRE5SN**
	for Ø90 mm	**XCCRE9SN**

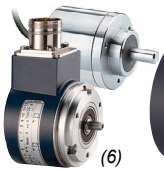


Bracket with play compensator		
	for Ø58 mm	**XCCRE5RN**
	for Ø90 mm	**XCCRE9RN**

Absolute - single turn

(6)

Absolute - multiturn


(6)

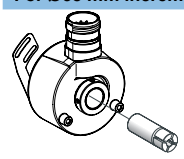
Communicating multiturn absolute

Diameter of housing (mm)			**Ø58**	**Ø90**	**Ø58**	**Ø90**	**Ø58 CANopen**	**Ø58 Profibus-DP**
Shaft Ø (mm)			**Ø10**	**Ø12**	**Ø10**	**Ø12**	**Ø10**	**Ø10**
Type of shaft *(2)*			**solid-shaft**	**solid-shaft**	**solid-shaft**	**solid-shaft**	**solid-shaft** *(4)*	**solid-shaft** *(4)*
Maximum rotational speed (rpm)			9000	6000	6000	6000	6000	6000
Maximum frequency (kHz)			100	100 (1000 SSI)	100 (500 SSI)	100 (500 SSI)	800	800
Maximum load (daN)			10 / 25 *(6)*	20	10	20	11	11
Torque (N•cm)			0.4	1	0.4	1	0.3	0.3
Product certification			CE	CE	CE	CE	CE	CE
Temperature range			−4 to +194 °F (−20 to +90 °C)	−4 to +185 °F (−20 to +85 °C)	−4 to +185 °F (−20 to +85 °C)	−4 to +185 °F (−20 to +85 °C)	−40 to +185 °F (−40 to +85 °C)	−40 to +185 °F (−40 to +85 °C)
Degree of protection, conforming to IEC 60529			IP65 / IP67 *(3)* / IP69K *(6)*	IP66	IP65 / IP67 *(3)* / IP69K *(6)*	IP66	IP64	IP64
Supply voltage			11 to 30 V					
Connection			**M23 male connector**, radial / 2 m Axial cable *(6)*				**2** x **M12** + **1** x **Pg 9**	**3** x **Pg 9**
Resolution	Output stage	Code						
to 8192 points	Push-pull	Binary	**XCC2510PS81KB**	**XCC2912PS81KBN**	–	–	–	–
		Gray	**XCC2510PS81KGN**	**XCC2912PS81KGN**	–	–	–	–
		(6)	**XCC2510SPA81KGN**	–				
	SSI, 13 bits	Binary	**XCC2510PS81SBN**	**XCC2912PS81SBN**	–	–	–	–
		Gray	**XCC2510PS81SGN**	**XCC2912PS81SGN**	–	–	–	–
		(6)	**XCC2510SPA81SGN**	–				
4096 points / 8192 turns	SSI, 25 bits *(5)*	Gray	–	–	**XCC3510PS48SGN**	–	–	–
		(6)			**XCC3510SPA48SGN**			
8192 points / 4096 turns	SSI, 25 bits *(5)*	Binary			**XCC3510PS84SBN**	**XCC3912PS84SBN**	–	–
		Gray	–	–	**XCC3510PS84SGN**	**XCC3912PS84SGN**	–	–
8192 points / 4096 turns	CANopen, 25 bits	Binary	–	–	–	–	**XCC3510PS84CBN**	–
	Profibus-DP, 25 bits	Binary	–	–	–	–	–	**XCC3510PV84FBN**

(1) Anti-rotation device included with through-shaft version encoders. To achieve Ø6, Ø8, Ø10, or Ø12 mm through-shafts, use the reduction collars.
(2) All versions are also available with through-shaft and anti-rotation device.
(3) IP67 with sealed collar XCCRB3.
(4) Versions available with hollow shaft and anti-rotation device.
(5) Parallel outputs possible for multiturn absolute encoders using deserialization jumper cables XCCRM23SUB37●●.
(6) Product in stainless steel 316L.

Reduction collars

For Ø58 mm incremental encoders with through-shaft



Ø14 to Ø6 mm	**XCCR158RDA06**
Ø14 to Ø8 mm	**XCCR158RDA08**
Ø14 to Ø10 mm	**XCCR158RDA10**
Ø14 to Ø12 mm	**XCCR158RDA12**

IP67 sealed collar

For encoders XCC1510, 2510, 3510

Ø58 mm	**XCCRB3**

Prewired connectors and jumper cables

Prewired M23 female connectors (cable length 5 m)

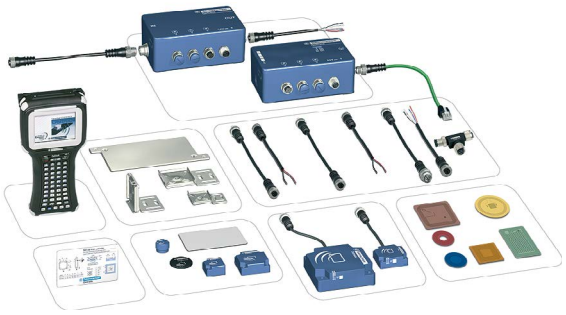
8-wire for SSI encoders	**XCCPM23122L5**
10-wire for incremental encoders	**XCCPM23121L5**
16-wire for parallel single turn absolute encoders	**XCCPM23161L5**

Deserialization jumper cables (M23 F – SUB-D37 M) (0.5 m)

SSI Gray – // Gray PNP	**XCCRM23SUB37PG**
SSI binary – // binary NPN	**XCCRM23SUB37PB**

OsiSense XG

Radio frequency identification
13.56 MHz RFID



Introduction
The OsiSense XG RFID is compatible with the majority of ISO 18000-3, ISO 15693, and ISO 14443 electronic tags. OsiSense XG is designed to provide easy integration. The smart antennas communicate directly with Modbus™ RTU and Uni-Telway network protocols over an RS-485 serial interface, or connect easily to other communication protocols using a network connection box: XGSZ33ETH for Modbus TCP/IP; XGSZ33EIP for Ethernet/IP; and XGSZ33PDP for Profibus-DP.

The OsiSense XG RFID offer includes:
- 2 models of 13.56 MHz smart antennas (read/write station)
- 11 models of 13.56 MHz electronic tags
- 1 portable RFID diagnostics terminal
- 3 models of network connection boxes plus connection and mounting accessories

Setup
OsiSense XG smart antennas are simple to set up:
- Integrated RFID and network functions
- Programming performed in user PLC language
- Automatic detection of the RFID electronic tags (read or write)
- Automatic setting of the communication parameters such as speed, format, parity, and protocol
- Configuration of the network address (1–15) using the badge included with the smart antenna
- Low sensitivity to metal environments

Installation
OsiSense XG smart antennas easily integrate into flexible manufacturing production lines:
- Quick connection using an M12 connector
- Screw mounting or clip-on mounting

Smart antenna, 13.56 MHz		Flat form 40	Flat form 80	
Dimensions, W x H x D, mm (in.)		40 x 40 x 15 (1.58 x 1.58 x 0.59)	80 x 80 x 26 (3.15 x 3.15 x 1.02)	
Nominal sensing distance, depending on the tag (mm)		18–70	20–100	
Type of associated tag		ISO 15693 and ISO 14443 standard tags. Automatic detection of the type of tag.		
Display		Dual colour LED for network communication, and dual colour LED for RFID communication		
Conformity to standards		CE, EN 301489-1, EN 301489-3, ETS 300330-1 and ETS 300330-2, FCC part 15 - UL		
Degree of protection conforming to IEC 60529		IP67		
Serial link	Type	RS-485		Ethernet (dual port)
	Protocol	Modbus and Uni-Telway		Modbus TCP/IP and Ethernet/IP
	Speed (baud rate)	9600–115,200 (automatic detection)		10/100MB
Ambient air temperature		Operation: −13 to +158 °F (−25 to +70 °C); Storage: −40 to +185 °F (−40 to +85 °C)		
Nominal supply voltage		24 Vdc PELV (protective extra-low voltage)		
Connection		Shielded M12 5-pin male connector on pigtail. Only for connection to the communication network and the supply.		Ethernet: 2 female M12, D-coded. Power supply: 1 male M8, 4-pin.
Catalog numbers		**XGCS4901201**	**XGCS8901201**	**XGCS850C201**

Electronic tags		Flat form 40			ISO badge *(1)*	Disc		Flat form 26	Cylindrical	
Dimensions, W x H x D, mm (in.)		40 x 40 x 15 (1.58 x 1.58 x 0.59)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	40 x 40 x 15 (1.58 x 1.58 x 0.59)	54 x 85.5 x 0.8 (2.13 x 3.37 x 0.03)	Ø30 x 3 (0.12)	Ø30 x 3 (0.12)	26 x 26 x 13 (1.02 x 1.02 x 0.51)	M18 x 1 x 12 (M18 x 0.04 x 0.47)	Ø40 x 11 (1.58 x 0.43)
Type of memory		FRAM	FRAM	FRAM	EEPROM	EEPROM	FRAM			EEPROM
Memory capacity (bytes)		2000	8192	32768	256	112	2000	256	256	64
Nominal sensing distance (mm)										
(Read/Write)	with station XGCS49●	45	25	25	70	48	45	40	18	30 – 39
	with station XGCS89●	65	39	39	100	65	65	55	20	35 – 46
Time (ms) *(2)*	Read	7 + 2 x n	6 + 0.25 x n	6 + 0.25 x n	12 + 0.825 x n	12 + 0.825 x n	7 + 2 x n	12 + 0.825 x n	12 + 0.825 x n	12 + 0.825 x n
	Write	7 + 2.4 x n	6 + 0.25 x n	6 + 0.25 x n	20 + 11.8 x n	12 + 5.6 x n	7 + 2.4 x n	20 + 11.8 x n	19 + 4.1 x n	20 + 11.8 x n
Degree of protection conforming to IEC 60529		IP68	IP68	IP68	IP65	IP65	IP65	IP68	IP68	IP68
Standard supported		ISO 15693	ISO 14443B	ISO 14443B	ISO 15693	ISO 15693	ISO 15693			
Mounting on metal support		Yes	Yes	Yes	Insulator req'd	Insulator req'd	Insulator req'd	Yes	No	Yes
Catalog numbers		**XGHB440245**	**XGHB440845**	**XGHB443245**	**XGHB90E340**	**XGHB320345**	**XGHB320246**	**XGHB221346**	**XGHB211345**	**XGHB411346**

(1) Customized versions on request. *(2)* n = number of 16-bit words.

Connection boxes	Ethernet Modbus™ TCP/IP box	Profibus box	Ethernet/IP box
Dimensions, W x H x D, mm (in.)	130 x 80 x 51 (5.19 x 3.15 x 2.01)	158 x 100 x 60 (6.22 x 3.94 x 2.36)	130 x 80 x 51 (5.19 x 3.15 x 2.01)
Protocols	Modbus TCP/IP	Profibus DP	Ethernet/IP
Supply voltage	24 Vdc PELV. M12, 4-pin male, A coding connector		
Conformity to standards	CE, UL	CE	CE
Station connection	M12, 5-pin female, A coding connector		
Degree of protection conforming to IEC 60529	IP65		
Catalog numbers	**XGSZ33ETH**	**XGSZ33PDP**	**XGSZ33EIP**

Terminal		Portable 13.56 MHz RFID diagnostics terminal
Dimensions W x H x D, mm (in.)		78 x 153 x 27 (3.07 x 6.02 x 1.06)
Function		Read/Write operations on electronic tags
Operating system		Proprietary OS
Conformity to standards		CE, FCC class A, Part 15
Display		53 x 95 mm color OLED touchscreen, 272 x 480 pixels resolution
Degree of protection conforming to IEC 60529		IP40
Memory	RAM	256 Mb
	Storage	internal 2 GB + USB socket for memory stick
Catalog number		**XGST2422** (includes terminal plus battery, battery charger, 2 GB USB memory stick, and carrying case). RFID reader, ordered separately: **XGCS4901201** integrated reader or **XGW4F111** remote reader

Connection accessories	for Modbus network			for Profibus	for Ethernet	Prewired connector	T connector
Description	Modbus connecting cable, M12 connectors, male to female	Prewired connector M12 male to bare wires	Modbus connecting cable, M12 female to mini-DIN 8	Profibus connecting cables, M12 connectors, male to female	Ethernet connecting cable, M12 male to RJ45	Prewired supply connector, M12 female	Network M12 T connector 1 male to 2 female
Application	RS-485 connection between a smart antenna and a connection box or between 2 Modbus boxes	Connection between a Modbus box and a Modbus / Uni-Telway network	Connection between a Modbus box and a PLC	Connection between a Profibus box and a Profibus network	Connection between an Ethernet box and the Ethernet network	24 Vdc supply to connection boxes	For chaining of smart antennas on RS-485 network
2 m cable	**TCSMCN1M1F2**	**TCSMCN1F2**	**TCSMCN1F9M2P**	**FTXDP1220**	**XGSZ12E4503** *(3)*	**XGSZ09L2**	**TCSCTN011M11F** *(no cable)*
5 m cable	**TCSMCN1M1F5**	**TCSMCN1F5**	–	**FTXDP1250**	**XGSZ12E4510** *(4)*	**XGSZ09L5**	

(3) 3 m cable. *(4)* 10 m cable.

Field expander

To be associated with a smart antenna XGCS4901201 for conveying and handling applications

50 x 400 mm	50 x 200 mm	250 x 250 mm
XGFEC540	**XGFEC520**	**XGFEC2525**

RS-232/RS-485 converter

For connecting a PC to an OsiSense XG smart antenna

XGSZ24

Technical documentation

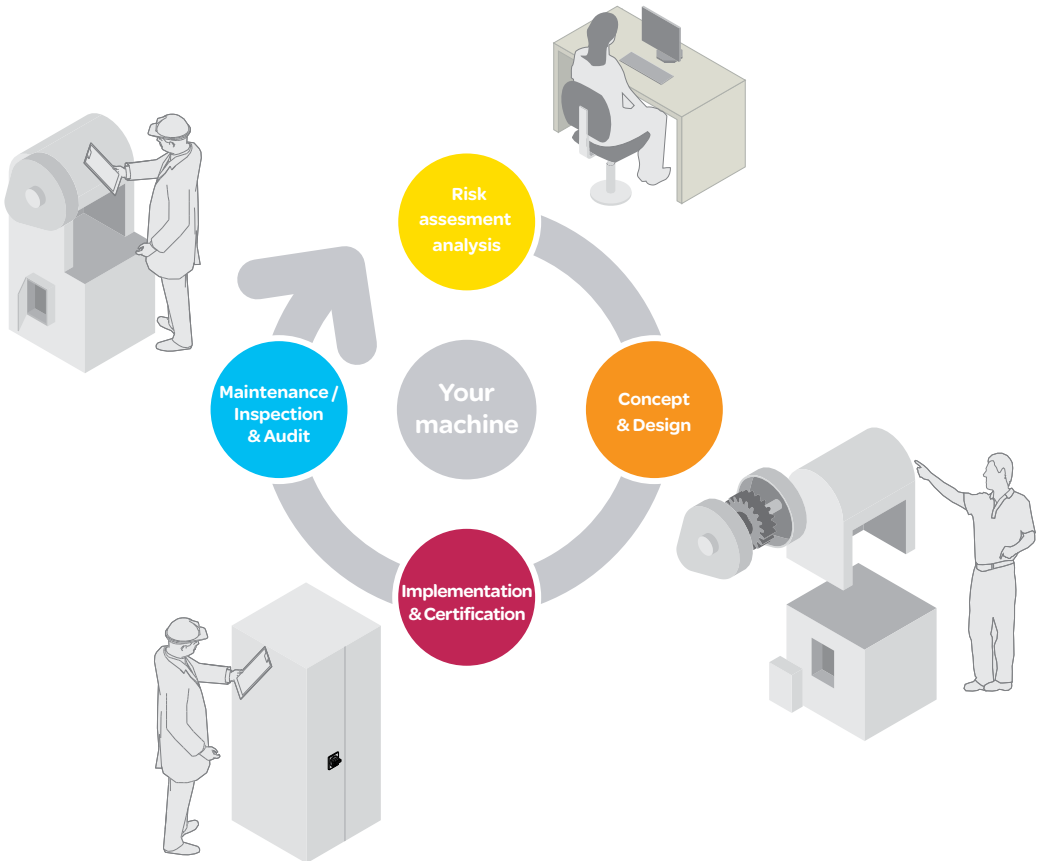
OsiSense XG RFID catalog

9006CT0902

Preventa products: offering 360° safeguarding throughout the life cycle of your machine

The Preventa range enhances safety throughout a machine's entire life cycle—from design, manufacture, installation, adjustment, operation, and servicing, right through to decommissioning.

The Preventa product line offers an extensive range of safety products, compliant with U.S., Canadian, and international standards, designed to provide the most comprehensive protection for personnel and equipment.



> New machines—the Machinery Directive

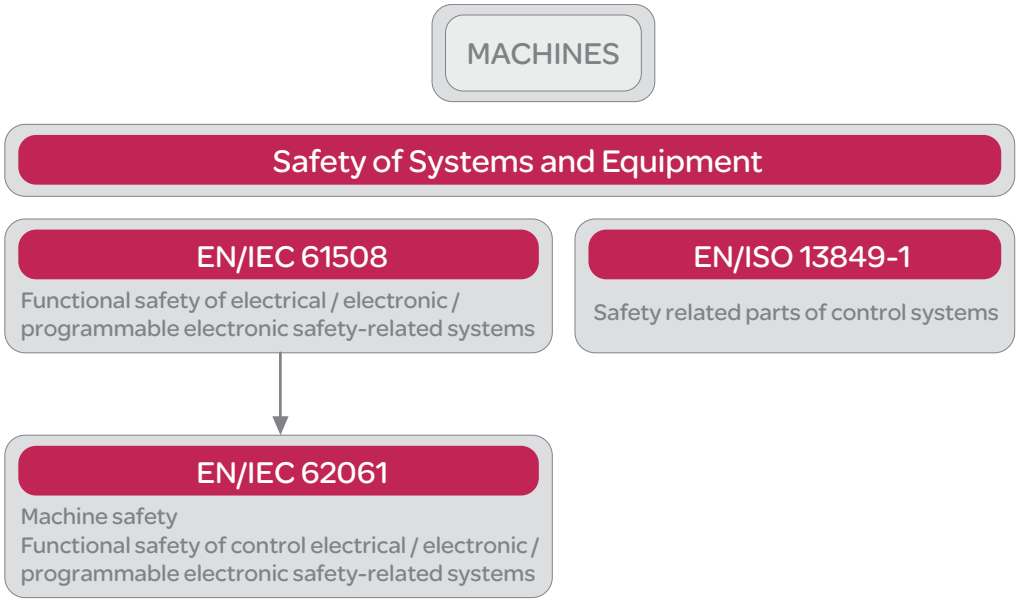
The **previous** Machinery Directive, 98/37/EC, was developed to help manufacturers ensure a minimum safety level for machinery and equipment sold within the EU (European Union).

The **new** European Machinery Directive, 2006/42/EC, went into effect on December 29, 2009. Machines must comply with the Essential Health and Safety Requirements (EHSRs) listed in Annex I of the Directive, which sets a common minimum level of protection across the EEA (European Economic Area).

Machine manufacturers, or their authorized representatives within the EU, must ensure that the machine is compliant with all requirements of this Directive.

Functional safety

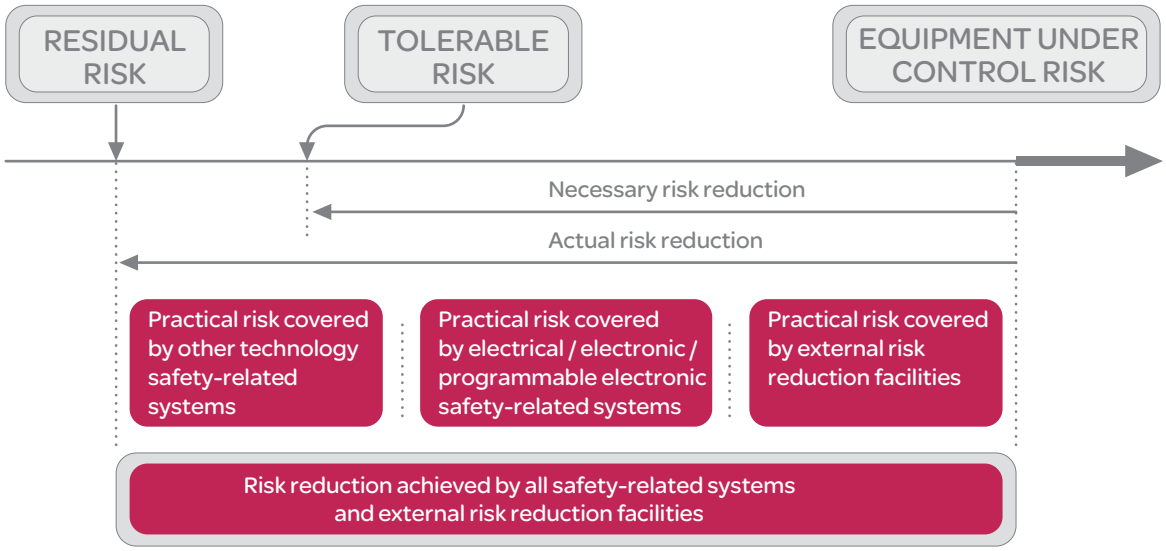
> Safety integrity level (SIL), Performance level (PL)



Risk reduction according to EN/IEC 61508 and EN/ISO 13849-1

- **Safety** is achieved by reducing the risk (for those hazards that cannot be designed out).
- **Residual risk** is the risk remaining after protective measures have been taken.
- **Protective measures** realized by E/E/PE* safety related systems contribute to risk reduction.

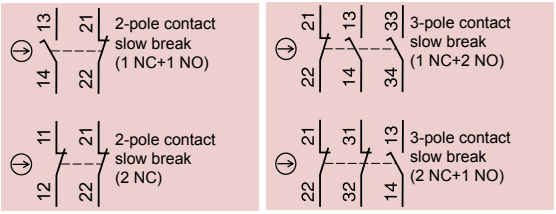
* Electric / Electronic / Programmable electronic

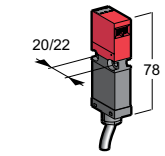


For more information on Machine Safety, refer to the *Preventa Machine Safety Products catalog* (MKTED208051EN-US).

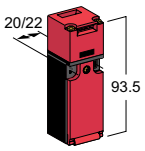
Safety interlock switches
and actuators

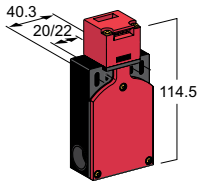
Illustration of contacts with the actuator inserted into the head of the switch





Without locking





Plastic, double insulated switches			Type XCSMP	Type XCSPA		Type XCSTA
Maximum safety level *(3)*			PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061			
Actuation speed			0.05–1.5 m/s	0.1–0.5 m/s		0.1–0.5 m/s
Rated operational specifications (conforming to EN IEC 60947-5-1)			AC 15, C 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529			IP67			
Reliability data B10d			5,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)			
Dimensions (body + head), W x D x H, mm (in.)			30 x 15 x 87 (1.18 x 0.59 x 3.43)	30 x 30 x 93.5 (1.18 x 1.18 x 3.68)		52 x 30 x 114.5 (2.05 x 1.18 x 4.51)
Resistence to forcible withdrawal of actuator			8 N	10 N *(1)*		10 N *(1)*
Wiring connection			precabled, 2 m	1 x 1/2"-14 NPT entry	1 x PG 11 entry	1/2"-14 NPT entry *(2)*
Safety contacts	1 NC+1 NO	break before make, slow break	**XCSMP59L2** ⊖	**XCSPA593** ⊖	**XCSPA591** ⊖	–
	2 NC	slow break	**XCSMP79L2** ⊖	**XCSPA793** ⊖	**XCSPA791** ⊖	–
	1 NC+2 NO	break before make, slow break	–	–	–	**XCSTA593** ⊖
	2 NC+1 NO	break before make, slow break	**XCSMP70L2** ⊖	–	–	**XCSTA793** ⊖
	3 NC	slow break	**XCSMP80L2** ⊖	–	–	**XCSTA893** ⊖

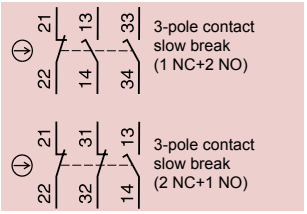
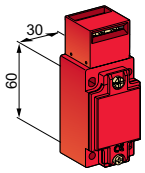
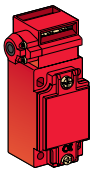
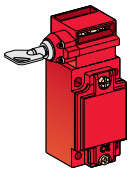


Illustration of contacts with the actuator inserted into the head of the switch



Without locking





With interlocking, manual unlocking
By button — By key lock

Metal, double insulated switches			Type XCSA		Type XCSB	Type XCSC
Maximum safety level *(3)*			PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061			
Actuation speed			0.01–0.5 m/s		0.01–0.5 m/s	
Rated operational specifications (conforming to EN IEC 60947-5-1)			AC 15, A 300 / DC 13, Q 300			
Degree of protection conforming to IEC 60529			IP67			
Reliability data B10d			5,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)			
Dimensions (body + head), W x D x H, mm (in.)			40 x 44 x 113.5 (1.58 x 1.73 x 4.47)		52 x 44 x 113.5 (2.05 x 1.73 x 4.47)	
Resistence to forcible withdrawal of actuator			20 N		1500 N	
Wiring connection			1 x 1/2"-14 NPT entry	1 x Pg 13.5	1 x 1/2"-14 NPT entry *(4)*	1 x 1/2"-14 NPT *(4)*
Safety contacts	1 NC+2 NO	break before make, slow break	**XCSA503** ⊖	**XCSA501** ⊖	**XCSB503** ⊖	**XCSC503** ⊖
	2 NC+1 NO	break before make, slow break	**XCSA703** ⊖	**XCSA701** ⊖	**XCSB703** ⊖	**XCSC703** ⊖
	3 NC	slow break	**XCSA803** ⊖	**XCSA801** ⊖	**XCSB803** ⊖	**XCSC803** ⊖

Accessories

Straight actuator

Right-angled actuator

Pivoting actuator, right door

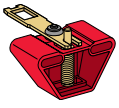
Pivoting actuator, left door

For safety interlock switches XCSMP	Actuators			
Catalog numbers	**XCSZ81**	**XCSZ84**	**XCSZ83**	**XCSZ85**

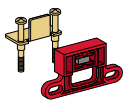
Straight actuator

Wide actuator, 40 mm *(5)*

Right-angled actuator



Pivoting actuator

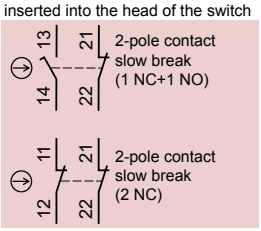


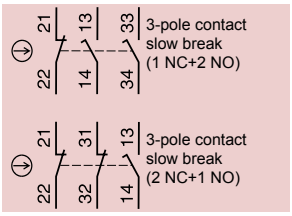
Guard/door retainer

For safety interlock switches XCSPA/TA	Actuators				Retaining device
Catalog numbers	**XCSZ11**	**XCSZ12**	**XCSZ14**	**XCSZ13**	**XCSZ21**

(1) In order to increase the resistance to 50 N, you must add accessory XCSZ21 to key actuators XCSZ12.
(2) For a no. 11 (Pg 11) cable connector entry, replace the last digit in the catalog number with **1.** Example: XCSTA59**3** becomes XCSTA59**1**.
Each device includes two Pg 11 cable connector entries: one Pg 11 to 1/2"-14 DE9RA1012 adapter, and one Pg 11 end cap.
(3) Using an appropriate and correctly connected control system.
(4) For Pg 13.5 entry, change the last digit in the catalog number to 1. Example: XCSC50**3** becomes XCSC50**1**.
(5) For 29 mm, catalog number = **XCSZ15.**

Illustration of contacts with the actuator inserted into the head of the switch





Safety interlock switches Standard version and Connector version			Type XCSLF, metal	Type XCSLE, plastic
Maximum safety level *(2)*			PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061	
Degree of protection conforming to IEC 60529			IP66 and IP67	
Reliability data B10d			5,500,000 (given value for a service life of 20 years, limited by mechanical or contact wear)	
Dimensions (body + head), W x D x H, mm (in.)			43.5 x 51 x 205 (1.71 x 2.01 x 8.07)	
Resistence to forcible withdrawal of actuator			3,000 N	1,400 N
Locking			on de-energization *(1)*	
Power supply for the solenoid and LEDs			24 Vac/Vdc	
Material case			Zamak	Polyamide
Wiring connection *(3)*			1/2"-14 NPT entry	
Safety contacts	2 NC	(simultaneous, slow break)	**XCSLF2727313** ⊕	**XCSLE2727313** ⊕
	1 NC+2 NO	(break before make, slow break)	**XCSLF3535313** ⊕	—
	2 NC+1 NO	(break before make, slow break)	**XCSLF3737313** ⊕	**XCSLE3737313** ⊕
	3 NC	(simultaneous, slow break)	**XCSLF3838313** ⊕	—

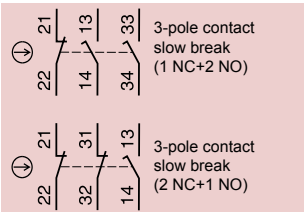
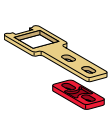


Illustration of contacts with the actuator inserted into the head of the switch

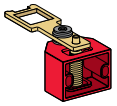
Safety interlock switches Push button version and Push button with connector version			Type XCSLF, metal
Maximum safety level *(2)*			PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061
Degree of protection conforming to IEC 60529			IP66
Reliability data B10d			5,500,000 (given value for a service life of 20 years, limited by mechanical or contact wear)
Dimensions (body + head), W x D x H, mm (in.)			43.5 x 51 x 205 (1.71 x 2.01 x 8.07)
Resistence to forcible withdrawal of actuator			3,000 N
Locking			on de-energization *(1)*
With/without key no. 455 to release			Without / With
Power supply for the solenoid and LEDs			24 Vac/Vdc
Material case			Zamak
Wiring connection *(3)*			1/2"-14 NPT entry
Safety contacts	2 NC+1 NO	(break before make, slow break)	**XCSLF3737413** ⊕ / **XCSLF3737613** ⊕

Accessories

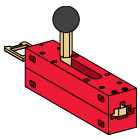


Straight actuator

Wide actuator



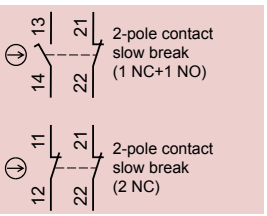
Pivoting actuator

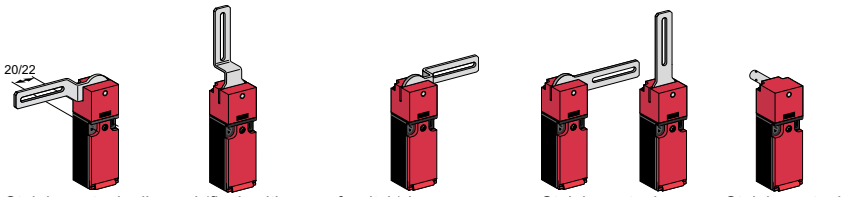


For safety interlock switches XCSA/B/C/LE/LF	Actuators			Padlockable actuator
Catalog numbers	**XCSZ01**	**XCSZ02**	**XCSZ03**	**XCSZ05**

(1) For locking on **energization** of the solenoid, refer to TEsensors.us.
(2) Using an appropriate and correctly connected control system.
(3) For other connections, consult the Customer Care Center.

Safety interlock switches
with rotary lever or spindle



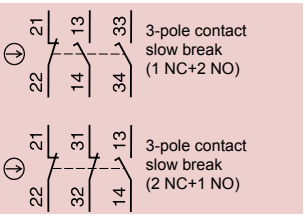


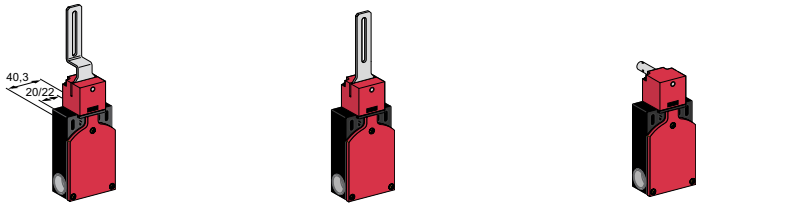
Stainless steel, elbowed (flush with rear of switch) lever

Stainless steel straight lever

Stainless steel spindle, 30 mm

Plastic switches		Type XCSPL with rotary lever or XCSPR with spindle 1 x 1/2"-14 NPT entry *(1)*				
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061				
Minimum torque	actuation	0.1 N•m (0.89 lb-in)				
	positive opening	0.25 N•m (2.21 lb-in)				
Degree of protection		IP67				
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300				
Dimensions (body + head) W x D x H, mm (in.)		30 x 30 x 160 (1.18 x 1.18 x 6.30)				30 x 30 x 96 (1.18 x 1.18 x 3.78)
Lever position		Left	Centered	Right	Left, right, or centered	–
Tripping angle		5°				
Reliability data B10d		5,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)				
Complete switch	1 NC+1 NO break before make, slow break	**XCSPL593**	**XCSPL583**	**XCSPL573**	**XCSPL563**	**XCSPR553**
	2 NC slow break	**XCSPL793**	**XCSPL783**	**XCSPL773**	**XCSPL763**	**XCSPR753**





Stainless steel lever, elbowed (flush with the rear of the switch)

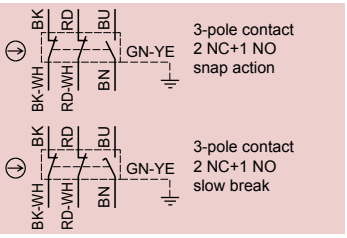
Stainless steel lever, straight

Stainless steel spindle 30 mm

Plastic switches		Type XCSTL with rotary lever or XCSTR with spindle 2 x 1/2"-14 NPT entry *(1)* *(2)*		
Maximum safety level *(3)*		PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061		
Minimum torque	actuation	0.1 N•m (0.89 lb-in)		
	positive opening	0.45 N•m (3.98 lb-in)		
Degree of protection		IP67		
Rated operational specifications (conforming to EN IEC 60947-5-1)		AC 15, A 300 / DC 13, Q 300		
Dimensions (body + head) W x P x H, mm (in.)		52 x 30 x 180 (2.05 x 1.18 x 7.09)		52 x 30 x 117 (2.05 x 1.18 x 4.61)
Lever position		Centered	Centered	–
Tripping angle		5°		
Reliability data B10d		5,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)		
Complete switch	1 NC+2 NO break before make, slow break	**XCSTL583**	**XCSTL553**	**XCSTR553**
	2 NC+1 NO break before make, slow break	**XCSTL783**	**XCSTL753**	**XCSTR753**

(1) For a no. 11 (Pg 11) cable connector entry, replace the last digit in the catalog number with **1**. Example: XCSPL59**3** becomes XCSPL59**1**.
(2) Each device comes with two Pg 11 cable connector entries: one Pg 11 to 1/2"-14 DE9RA1012 adapter, and one Pg 11 end cap.
(3) Using an appropriate and correctly connected control system.

Limit switches
Safety limit switches

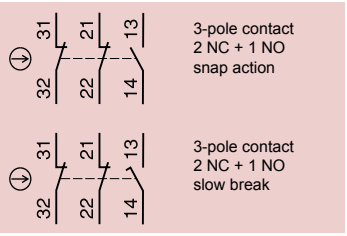


Metal
end plunger

Roller plunger

Thermoplastic
roller lever

Miniature switches		Type XCSM, metal precabled, 2 m *(1)*		
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061		
Maximum actuation speed		0.5 m/s	0.5 m/s	1.5 m/s
Minimum force or torque	actuation	8.5 N	7 N	0.5 N•m (4.43 lb-in)
	positive opening	42.5 N	35 N	0.1 N•m (0.89 lb-in)
Degree of protection		IP66 + IP67 + IP68	IP66 + IP67 + IP68	IP66 + IP67 + IP68
Dimensions (body + head) W x D x H, mm (in.)		30 x 16 x 60 (1.18 x 0.63 x 2.36)	30 x 16 x 70.5 (1.18 x 0.63 x 2.78)	30 x 32 x 92.5 (1.18 x 1.26 x 3.64)
Reliability data B10d		50,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)		
Complete switch	2 NC+1 NO snap action	**XCSM3910L2** ⊖	**XCSM3902L2** ⊖	**XCSM3915L2** ⊖
	2 NC+1 NO slow break	**XCSM3710L2** ⊖	**XCSM3702L2** ⊖	**XCSM3715L2** ⊖



Metal
end plunger

Roller
plunger

Thermoplastic
roller lever

Metal
end plunger

Roller
plunger

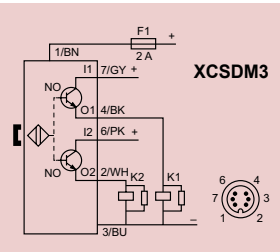
Thermoplastic
roller lever

Compact switches		Type XCSD, metal 1/2"-14 NPT conduit entry *(3)*			Type XCSP, plastic 1/2"-14 NPT conduit entry *(3)*		
Maximum safety level *(2)*		PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061					
Maximum actuation speed		0.5 m/s		1.5 m/s	0.5 m/s		1.5 m/s
Minimum force or torque	actuation	15 N (3.37 lb)	12 N (2.70 lb)	10 N•m (88.51 lb-in)	15 N (3.37 lb)	12 N (2.70 lb)	10 N•m (88.51 lb-in)
	positive opening	45 N (10.12 lb)	36 N (8.09 lb)	0.1 N•m (0.89 lb-in)	45 N (10.12 lb)	36 N (8.09 lb)	0.1 N•m (0.89 lb-in)
Degree of protection		IP66 + IP67			IP66 + IP67		
Dimensions (body + head) W x D x H, mm (in.)		34 x 34.5 x 89 (1.34 x 1.34 x 3.50)	34 x 34.5 x 99.5 (1.34 x 1.34 x 3.92)	34 x 43 x 121.5 (1.34 x 1.69 x 4.78)	34 x 34.5 x 89 (1.34 x 1.39 x 3.50)	34 x 34.5 x 99.5 1.34 x 1.39 x 3.92)	34 x 43 x 121.5 1.34 x 1.69 x 4.78)
Reliability data B10d		50,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)					
Complete switch	2 NC+1 NO snap action	**XCSD3910N12**	**XCSD3902N12**	**XCSD3918N12**	**XCSP3910N12**	**XCSP3902N12**	**XCSP3918N12**
	2 NC+1 NO slow break	**XCSD3710N12**	**XCSD3702N12**	**XCSD3718N12**	**XCSP3710N12**	**XCSP3702N12**	**XCSP3718N12**

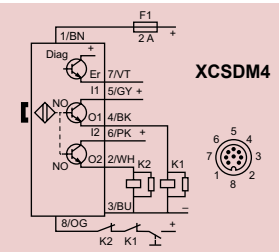
(1) For a 1 m cable, replace the last digit of the catalog number with **1**. Example: XCSM3910L**2** becomes XCSM3910L**1**.
For a 5 m cable, replace the last digit of the catalog number with **5**. Example: XCSM3910L**2** becomes XCSM3910L**5**.
(2) Using an appropriate and correctly connected control system.
(3) For a Pg 13.5 entry, change suffix **N12** to **G13**. Example: XCSP3710**N12** becomes XCSP3710**G13**.

Coded magnetic technology
Plastic coded magnetic system

(1)



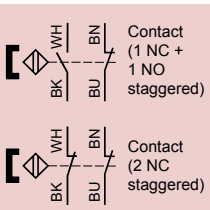
(1)



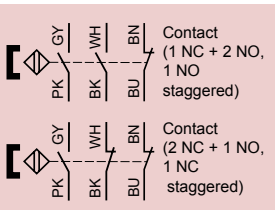
Type of system with integrated safety module			SIL2/Category 3 XCSDM3	SIL3/Category 4 XCSDM4
Maximum safety level			SIL 2 conforming to EN/IEC 61508, PL=d, category 3 conforming to EN/ISO 13849-1	SIL 3 conforming to EN/IEC 61508, PL=e, category 4 conforming to EN/ISO 13849-1
Switches for actuation			**Face to face, face to side, side to side**	
Degree of protection			Precabled: IP66 / IP67, IP69K; connector: IP67	
Type of contact			2 solid-state output PNP / NO, 1.5 A / 24 Vdc (2 A up to 60 °C)	
Rated operational specifications (conforming to EN IEC 60947-5-1)			Ub: 24 Vdc +10%, −20%	
Dimensions, W x D x H, mm (in.)			34 x 27 x 100 (1.34 x 1.06 x 3.94)	
Operating zone			Sao= 10 mm / Sar= 20 mm	
Reliability data			MTTFd = 182 years; PFH = 3.94E -9; PFD = 1.15E -5; SFF = 92.5%; HFT = 1	
Catalog numbers	Connection	2 m cable	**XCSDM379102**	**XCSDM480102**
		5 m cable	**XCSDM379105**	**XCSDM480105**
		10 m cable	**XCSDM379110**	**XCSDM480110**
		M12 connector	**XCSDM3791M12** *(3)*	**XCSDM4801M12** *(3)*

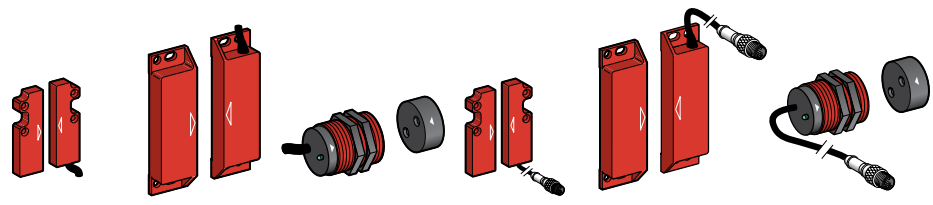
Plastic coded magnetic

(1)



(1)



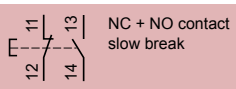


Rectangular without LED *(2)* | Rectangular without LED *(2)* | Cylindrical without LED *(2)* | Rectangular without LED *(2)* | Rectangular without LED *(2)* | Cylindrical without LED *(2)*

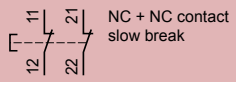
Plastic switches		Type XCSDM coded magnetic					
		Precabled, 2 m			Connector on pigtail connector, 10 cm *(3)*		
Maximum safety level *(5)*		PL=e, category 4 conforming to EN/ISO 13849-1; SIL 3 conforming to EN/IEC 61508					
Switches for actuation		**Face to face, face to side, side to side**		**Face to face**	**Face to face, face to side, side to side**		**Face to face**
Degree of protection		IP66 + IP67			IP66 + IP67		
Type of contact		REED			REED		
Rated operational specifications (conforming to EN IEC 60947-5-1)		Ue = 24 Vdc, Ie = 100 mA			Ue = 24 Vdc, Ie = 100 mA		
Dimensions, W x D x H, mm (in.)		16 x 7 x 51 (0.63 x 0.28 x 2.01)	25 x 13 x 88 (0.98 x 0.51 x 3.47)	M30 x 38.5 (1.52)	16 x 7 x 51 (0.63 x 0.28 x 2.01)	25 x 13 x 88 (0.98 x 0.51 x 3.47)	M30 x 38.5 (1.52)
Operating zone *(4)*		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20		Sao = 5 / Sar = 15	Sao = 8 / Sar = 20	
Reliability data B10d		50,000,000 (given value for a service life of 20 years, limited by mechanical or contact wear)					
Switch with coded magnet	1 NC+1 NO staggered	**XCSDMC5902**	**XCSDMP5902**	**XCSDMR5902**	**XCSDMC590L01M8**	**XCSDMP590L01M12**	**XCSDMR590L01M12**
	2 NC staggered	**XCSDMC7902**	**XCSDMR7902**	**XCSDMR7902**	**XCSDMC790L01M8**	**XCSDMP790L01M12**	**XCSDMR790L01M12**
	1 NC+2 NO, 1 NO staggered	–	**XCSDMP5002**	–	–	**XCSDMP500L01M12**	–
	2 NC+1 NO, 1 NC staggered	–	**XCSDMP7002**	–	–	**XCSDMP700L01M12**	–

(1) Illustration of contacts with the magnet in front of the switch.
(2) For a version with an LED indicator, replace the last **0** in the catalog number with **1**. Example: XCSDMC59**0**2 becomes XCSDMC59**1**2.
(3) For associated prewired female connectors, refer to the Sensors catalog.
(4) Sao: assured operating distance. Sar: assured release distance.
(5) Using an appropriate and correctly connected control system.

Emergency stops
Emergency stop cable pull switches



NC + NO contact
slow break



NC + NC contact
slow break

⊕ Positive opening operation

For operating cable length < 20 or 30 m depending on the model		Latching, without indicator light Pg 13.5 threaded cable entry		
Maximum safety level using an appropriate and correctly connected control system		PL=e, category 4 conforming to EN/ISO 13849-1; SIL CL3 conforming to EN/IEC 62061		
Mechanical life		100,000 operating cycles		
Shock / vibration resistance		50 gn / 10 gn		
Degree of protection		IP66 and IP67		
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850, UL (NiSD), CSA, CCC		
Dimensions W x D x H		200.9 x 40 x 64.2 mm		
Operating cable length		< 20 m	< 30 m	< 30 m
Operating cable anchoring point		straight	right side	left side
Reliability data B10d		500,000 (for a service life of 20 years, limited by mechanical or contact wear)		
Contact	1 NC + NO slow break	**XY2CJS15** *(4)*	**XY2CJR15** *(4)*	**XY2CJL15** *(4)*
	1 NC + NC slow break	**XY2CJS17** *(4)*	**XY2CJR17** *(4)*	**XY2CJL17** *(4)*
	2 NC + 1 NO slow break	**XY2CJS19** *(4) (5)*	**XY2CJR19** *(4) (5)*	**XY2CJL19** *(4) (5)*

(4) For ISO M20 threaded cable entry version, add H29 to the end of the reference selected. Example: XY2CJS15 becomes XY2CJS15H29.
(5) For 1/2" NPT threaded cable entry version, add H7 to the end of the reference selected. Example: XY2CJS19 becomes XY2CJS19H7

Booted push button reset

For operating cable ≤ 30 m		Latching, without indicator light 3 x 1/2"-14 NPT conduit entries *(1)*
Maximum safety level using an appropriate and correctly connected control system		PL=e, category 4 conforming to EN/ISO 13849-1; SIL 3 conforming to EN/IEC 61508
Mechanical life		1 million operating cycles
Shock / vibration resistance		50 gn / 10 gn
Degree of protection		IP65
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850: 2006, UL 508 and CSA C 22-2 no. 14 (with suffix H7)
Dimensions, W x D x H, mm (in.)		201 x 71 x 68 (7.91 x 2.80 x 2.68)
Operating cable length		≤ 30 m
Operating cable anchoring point		To right or to left
Reliability data B10d		5,000,000 (for a service life of 20 years, limited by mechanical or contact wear)
Contact	1 NC + NO slow break	**XY2CH13250H7**
	1 NC + NC slow break	**XY2CH13270H7**
	2 NC+1 NO slow break	**XY2CH13290H7**

Booted pusbutton reset

For operating cable ≤ 70 m		Latching, without indicator light 3 x 1/2"-14 NPT conduit entries	
Maximum safety level using an appropriate and correctly connected control system		PL=e, category 4 conforming to EN/ISO 13849-1; SIL 3 conforming to EN/IEC 61508	
Mechanical life (millions of operating cycles)		0.01	
Shock / vibration resistance		50 gn / 10 gn	
Degree of protection		IP65	
Conformity to standards		EN/IEC 60947-5-5, EN/ISO 13850: 2006, UL 508 and CSA C 22-2 no. 14 (with suffix H7)	
Dimensions, W x D x H, mm (in.)		229 x 82 x 142 (9.02 x 3.23 x 5.59)	
Operating cable length		≤ 70 m	
Operating cable anchoring point		To left	To right
Reliability data B10d		50,000 (for a service life of 20 years, limited by mechanical or contact wear)	
Contact	1 NC + NO slow break	**XY2CE2A250H7**	**XY2CE1A250H7**
	1 NC + NC slow break	**XY2CE2A270H7**	**XY2CE1A270H7**
	2 NC + NO slow break	**XY2CE2A290H7** *(2)*	**XY2CE1A290H7** *(2)*

(1) For a no. 13 (Pg 13.5) cable entry, delete **H7** from the end of the catalog number. Example: XY2CH13250**H7** becomes XY2CH13250.
(2) With protected LED, 24 V or 130 V supply voltage pilot light, replace the **0** in the catalog number with **6**. Example: XY2CE1A29**0**H7 becomes XY2CE1A29**6**H7.
With protected LED, 230 V supply voltage pilot light, replace the **0** in the catalog number with **7**. Example: XY2CE1A29**0**H7 becomes XY2CE1A29**7**H7.

Light curtains
Type 2 conforming to IEC 61496-1 & IEC 61496-2

Main features *(1)*
- Automatic or manual start/restart, selectable by wiring
- External device monitoring (EDM), selectable by wiring
- Two ranges for maximum sensing distance, selectable by wiring
- Test function (beam blocked state simulation)
- LED indicators for status and diagnosis
- Muting possible with dedicated safety module

Maximum safety level attained by the solution EN ISO 13849-1		**PLd/cat2**	
Maximum safety level attained by the solution IEC 61508/IEC 62061		**SIL2/SILCL2**	
Type IEC 61496-1 & IEC 61496-2		**Type 2 Multi-beam, infrared transmission**	
Nominal sensing distance (Sn)		0–4 m or 0–12 m, selectable	
Resolution (detection capability)		30 mm (Hand detection)	2–3 or 4 Beams (Body detection)
Number of safety outputs		2 solid-state PNP	
Response time (depending on the model)		4.5 to 23.5 ms	3 to 3.5 ms
Operating temperature range		+14 to +131 °F (−10 to +55 °C)	
Degree of protection		IP65-IP67	
Connection		M12 connector	
Reliability data		PFHd = 2.04E-8 to 8.98E-8	PFHd = 1.71E-8 to 2.02E-8
Mission time (TM)		20 years	
Height protected (mm)	160	**XUSL2E30H016N**	–
	260	**XUSL2E30H026N**	–
	310	**XUSL2E30H031N**	–
	460	**XUSL2E30H046N**	–
	510, 2 beams	–	**XUSL2E2BB051N**
	610	**XUSL2E30H061N**	–
	760	**XUSL2E30H076N**	–
	810, 3 beams	–	**XUSL2E3BB081N**
	910	**XUSL2E30H091N**	–
	910, 4 beams	–	**XUSL2E4BB091N**
	1060	**XUSL2E30H106N**	–
	1210	**XUSL2E30H121N**	–
	1360	**XUSL2E30H136N**	–
	1510	**XUSL2E30H151N**	–
	1660	**XUSL2E30H166N**	–
	1810	**XUSL2E30H181N**	–

Type 2 conforming to IEC 61496-1 et 2

Light curtain functions
- Auto/manual
- Monitoring of external switching devices (EDM: external device monitoring)
- LED display of operating modes
- Integral muting function

Maximum safety level achieved by the solution (EN ISO 13849-1, EN/IEC 62061)			**PLc/cat2, SILCL1**	
Type			**Single-beam with infrared emission**	
Height protected (conforming to prEN 999)			**750–1200 mm (1–4 beams)**	
Nominal sensing distance (Sn)			**8 m**	
Number of circuits	**Safety**		**2 NO**	
	Additional		**4 solid-state**	
Response time			**< 25 ms**	
Reliability data			PFHd = 4.6E -7 conforming to EN/IEC 61508 PFHd = 5.5E -7 conforming to EN/IEC 61508, with "muting" function	
Modules (integral muting function)		**24 Vdc**	**XPSCM1144P** *(2)*	
Thru-beam pairs, axially aligned	**Precabled, 5m**	**PNP**	**XU2S18PP340L5** *(3)*	
	M12 connector	**PNP**	**XU2S18PP340D** *(3)*	

(1) Also available in IP69K model. *(2)* For a non-removable terminal block, delete the letter P from the end of the catalog number. Example: XPSCM1144P becomes XPSCM1144).
(3) For alignment at 90° to the mounting axes, insert the letter W in the catalog number before the last letter. Example: XU2S18PP340L5 becomes XU2S18PP340WL5).

Type 4 conforming to IEC 61496-1 & IEC 61496-2

Main features *(1)*
- Automatic or manual start/restart, selectable by wiring
- External device monitoring (EDM), selectable by wiring
- Two ranges for maximum sensing distance, selectable by wiring
- Test function (beam blocked state simulation)
- LED indicators for status and diagnosis
- Muting possible with dedicated safety module

NOTE: Cables are sold separately.

Maximum safety level attained by the solution EN ISO 13849-1		**PLe/cat4**		
Maximum safety level attained by the solution IEC 61508/IEC 62061		**SIL3/SILCL3**		
Type IEC 61496-1 & IEC 61496-2		**Type4 Multi-beam, infrared transmission**		
Nominal sensing distance (Sn)		0–3 m or 1–6 m, selectable	0–4 m or 0–12 m, selectable	0–4 m or 0–12 m, selectable
Resolution (detection capability)		14 mm (Finger detection)	30 mm (Hand detection)	2-3 or 4 Beams (Body detection)
Number of safety outputs		2 solid-state PNP		
Response time (depending on the model)		4–23.5 ms	4–22 ms	2.5–3 ms
Operating temperature range		+14 to +131 °F (−10 to +55 °C)		
Degree of protection		IP65-IP67		
Connection		M12 connector		
Reliability data (depending on the model) conforming to EN/IEC 61508		PFHd = 1.03E-8 to 3.71E-8	PFHd = 7.08E-9 to 2.02E-8	PFHd = 6.89E-9 to 8.21E-9
Mission time (TM)		20 years		
Height protected (mm)	160	**XUSL4E14F016N**	**XUSL4E30H016N**	–
	260	–	**XUSL4E30H026N**	–
	310	**XUSL4E14F031N**	**XUSL4E30H031N**	–
	460	**XUSL4E14F046N**	**XUSL4E30H046N**	–
	510, 2 beams	–	–	**XUSL4E2BB051N**
	610	**XUSL4E14F061N**	**XUSL4E30H061N**	–
	760	**XUSL4E14F076N**	**XUSL4E30H076N**	–
	810, 3 beams	–	–	**XUSL4E3BB081N**
	910	**XUSL4E14F091N**	**XUSL4E30H091N**	–
	910, 4 beams	–	–	**XUSL4E4BB091N**
	1060	**XUSL4E14F106N**	**XUSL4E30H106N**	–
	1210	**XUSL4E14F121N**	**XUSL4E30H121N**	–
	1360	**XUSL4E14F136N**	**XUSL4E30H136N**	–
	1510	**XUSL4E14F151N**	**XUSL4E30H151N**	–
	1660	**XUSL4E14F166N**	**XUSL4E30H166N**	–
	1810	**XUSL4E14F181N**	**XUSL4E30H181N**	–

Type		**Long Range models** For hand and body protection	
Nominal sensing distance (Sn)		0–10 m or 3–20 m, selectable	0–10 m or 3–20 m, selectable
Reliability data (depending on the model) conforming to EN/IEC 61508		PFHd = 9.13E-9 to 2.29E-8	PFHd = 9.15E-9 to 1.08E-8
Response time (depending on the model)		3–13 ms	2.5 ms
Height protected (mm)	160	**XUSL4E30H016L**	–
	310	**XUSL4E30H031L**	–
	460	**XUSL4E30H046L**	–
	510, 2 beams	–	**XUSL4E2BB051L**
	610	**XUSL4E30H061L**	–
	760	**XUSL4E30H076L**	–
	810, 3 beams	–	**XUSL4E3BB081L**
	910	**XUSL4E30H091L**	–
	910, 4 beams	–	**XUSL4E4BB091L**
	1060	**XUSL4E30H106L**	–
	1210	**XUSL4E30H121L**	–
	1360	**XUSL4E30H136L**	–
	1510	**XUSL4E30H151L**	–
	1660	**XUSL4E30H166L**	–
	1810	**XUSL4E30H181L**	–

(1) Also exists in IP69K model.

Preventa
Detection

Light curtains
Type 4 conforming to IEC 61496-1 & IEC 61496-2

Main features *(1)*
- Automatic or manual start/restart, selectable by wiring
- External device monitoring (EDM), selectable by wiring
- Two ranges for maximum sensing distance, selectable by wiring
- Test function (beam blocked state simulation)
- LED indicators for status and diagnosis
- Muting possible with dedicated safety module

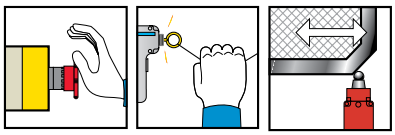
Type		Cascadable models—master segments *(2)*		
Nominal sensing distance (Sn)		0–3 m or 1–6 m, selectable	0–4 m or 0–12 m, selectable	0–4 m or 0–12 m, selectable
Resolution (detection capability)		14 mm (Finger detection)	30 mm (Hand detection)	2–3 or 4 beams (Body detection)
Number of safety outputs		2 solid-state PNP		
Response time		Depends on the model and the number of segments used. See the user manual for the calculation.		
Operating temperature range		+14 to +131 °F (−10 to +55 °C)		
Degree of protection		IP65-IP67		
Connection		2 x M12 connector		
Reliability data (depending on the model) conforming to EN/IEC 61508		PFHd = 1.27E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Mission time (TM)		20 years		
Height protected (mm) *(2)*	310	**XUSL4E14F031NM**	–	–
	460	**XUSL4E14F046NM**	**XUSL4E30H046NM**	–
	510, 2 beams	–	–	**XUSL4E2BB051NM**
	610	**XUSL4E14F061NM**	**XUSL4E30H061NM**	–
	760	**XUSL4E14F076NM**	**XUSL4E30H076NM**	–
	810, 3 beams	–	–	**XUSL4E3BB081NM**
	910	–	**XUSL4E30H091NM**	–
	910, 4 beams	–	–	**XUSL4E4BB091NM**
	1060	–	**XUSL4E30H106NM**	–

Type		Cascadable models—Slave1 Segments *(2)*		
Reliability data (depending on the model) conforming to EN/IEC 61508		PFHd = 1.27E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Response time		Depends on the model and the number of segments used. See the user manual for the calculation.		
Connection		M12 connector		
Height protected (mm) *(1)*	310	**XUSL4E14F031NS1**	–	–
	460	**XUSL4E14F046NS1**	**XUSL4E30H046NS1**	–
	510, 2 beams	–	–	**XUSL4E2BB051NS1**
	610	**XUSL4E14F061NS1**	**XUSL4E30H061NS1**	–
	760	**XUSL4E14F076NS1**	**XUSL4E30H076NS1**	–
	810, 3 beams	–	–	**XUSL4E3BB081NS1**
	910	–	**XUSL4E30H091NS1**	–
	910, 4 beams	–	–	**XUSL4E4BB091NS1**
	1060	–	**XUSL4E30H106NS1**	–

Type		Cascadable models—Slave2 Segments *(2)*		
Reliability data (depending on the model) conforming to EN/IEC 61508		PFHd = 1.52E-8 to 2E-8	PFHd = 9.47E-9 to 1.43E-8	PFHd = 6.89E-9 to 8.21E-9
Response time		Depends on the model and the number of segments used. See the user manual for the calculation.		
Connection		2 x M12 connector		
Height protected (mm) *(1)*	310		–	–
	460	**XUSL4E14F046NS2**	**XUSL4E30H046NS2**	–
	510, 2 beams	–	–	**XUSL4E2BB051NS2**
	610	**XUSL4E14F061NS2**	**XUSL4E30H061NS2**	–
	760	**XUSL4E14F076NS2**	**XUSL4E30H076NS2**	–
	810, 3 beams	–	–	**XUSL4E3BB081NS2**
	910	–	**XUSL4E30H091NS2**	–
	910, 4 beams	–	–	**XUSL4E4BB091NS2**
	1060	–	**XUSL4E30H106NS2**	–

(1) Other heights available on request.
(2) Cable sold separately. Refer to page 65.

Safety modules for monitoring
Emergency stops and limit switches



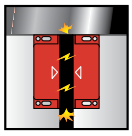
Maximum safety level attained by the solution (EN ISO 13849-1, EN/IEC 62061)		PL e / Cat. 4, SILCL 3							
Number of circuits	Safety	3 NO	3 NO	3 NO	3 NO	7 NO	3 NO + 3 NO time delay	2 NO + 1 NO time delay	2 NO + 3 NO time delay
	Additional	1 solid-state	1 NC	–	1 NC + 4 solid-state	2 NC + 4 solid-state	3 solid-state	–	4 solid-state
Display (number of LEDs)		2	2	3	4	4	11	3	4
Width of housing		22.5 mm	22.5 mm	22.5 mm	45 mm	90 mm	45 mm	22.5 mm	45 mm

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	–		–	–	–	**XPSAV11113P**	**XPSABV11330P** *(1)*	–
	24 Vac/Vdc	**XPSAC5121P**	**XPSAXE5120P** *(1)*	**XPSAF5130P**	**XPSAK311144P**	**XPSAR311144P**	–	–	**XPSATE5110P**

(1) For a version with spring terminals, replace the letter **P** with **C** at the end of the catalog number. Example: XPSAXE5120**P** becomes XPSAXE5120**C**.

Coded magnetic switches

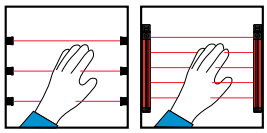


Maximum safety level attained by the solution (EN ISO 13849-1, EN/IEC 62061)		PL e / Cat. 4, SILCL 3	
For monitoring		2 coded magnetic switches maximum, NC + NO	6 coded magnetic switches maximum, NC + NO
Number of circuits	Safety	2 NO	2 NO
	Additional	2 solid-state	2 solid-state
Display (number of LEDs)		3	15
Width of housing, mm (in.)		22.5 (0.89)	45 (1.77)

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSDMB1132P**	**XPSDME1132P**

Safety modules for monitoring
Light curtains

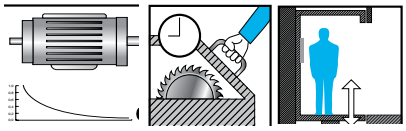


Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL c / Cat. 2, SILCL 1	PL e / Cat. 4, SILCL 3		
Number of circuits	Safety	2 NO	3 NO	3 NO	7 NO
	Additional	4 solid-state	–	1 NC + 4 solid-state	1 NC + 4 solid-state
Display (number of LEDs)		4	3	4	4
Width of housing, mm (in.)		45 (1.77)	22.5 (0.89)	45 (1.77)	90 (3.54)
Integral Muting function		Yes	No	No	No

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSCM1144P**	–	–	–
	24 Vac/Vdc	–	**XPSAFL5130P**	**XPSAK311144P**	**XPSAR311144P**

Zero speed and time delay



Maximum safety level of the solution attained (EN ISO 13849-1, EN/IEC 62061)		PL d / Cat. 3, SILCL 2		
For monitoring		Motor zero speed condition	Safety time delay	
Number of circuits	Safety	1 NO + 1 NC	1 NO time delay	1 NO pulse
	Additional	2 solid-state	2 NC + 2 solid-state	2 NC + 2 solid-state
Display (number of LEDs)		4	4	4
Width of housing, mm (in.)		45 (1.77)	45 (1.77)	45 (1.77)

Optimum solutions: safety modules (for monitoring 1 safety function)

Supply voltage	24 Vdc	**XPSVNE1142P** *(1)*	–	–
	24 Vac/Vdc	–	**XPSTSA5142P**	**XPSTSW5142P**

(1) Motor frequency ≤ 60 Hz. For frequencies ≥ 60 Hz, refer to the *Sensors* catalog, 9006CT1007.

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